

## **APPENDIX G**

# **HISTORICAL, ARCHITECTURAL, ARCHEOLOGICAL, AND CULTURAL RESOURCES**

This appendix provides the technical documents that describe the objectives and results of the historic, architectural, archeological, and cultural resources analysis under Section 106. The appendix includes the following reports and correspondence:

**Attachment G-1.** Architecture/History Survey Report for Terminal Area Plan and Air Traffic Actions Environmental Assessment (April 2021) and State Historic Preservation Office Correspondence

**Attachment G-2.** Determinations of Eligibility and State Historic Preservation Office Correspondence (note: each attachment begins with State Historic Preservation Office Correspondence followed by the full Determination of Eligibility)

- G-2.1 Terminal 1
- G-2.2 Terminal 1 Reevaluation
- G-2.3 Rotunda
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**Attachment G-3.** Effect Documentation

- G-3.1 Assessment of Effects Under Section 106 of the National Historic Preservation Act for the Chicago O'Hare International Airport Terminal Area Plan and Air Traffic Actions Environmental Assessment (December 2021)
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## **ATTACHMENT G-1**

# **ARCHITECTURE/HISTORY SURVEY REPORT FOR TERMINAL AREA PLAN AND AIR TRAFFIC ACTIONS ENVIRONMENTAL ASSESSMENT (APRIL 2021) AND STATE HISTORIC PRESERVATION OFFICE CORRESPONDENCE**



# **Architecture/History Survey Report for Terminal Area Plan and Air Traffic Actions Environmental Assessment**

**Chicago O'Hare International  
Airport**

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**Federal Aviation Administration**

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## Section 1

### Regulatory and Project Background

## 1. Regulatory and Project Background

Identification of historic properties supports Federal Aviation Administration (FAA) requirements for compliance with Section 106 regulations issued pursuant to the National Historic Preservation Act (NHPA), as amended (36 CFR 800). FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, and the associated Desk Reference and FAA's *Section 106 Handbook: How to Assess the Effects of FAA Actions on Historic Properties under Section 106 of the National Historic Preservation Act* (June 2015) also provide guidance for identifying historic properties. Section 106 of the NHPA concerns the review of federal undertakings. A federal undertaking is a project, activity, or program either funded, permitted, licensed, or approved by a federal agency.

The Terminal Area Plan and Air Traffic Actions Environmental Assessment comprises 35 projects that are the federal undertaking. The projects are organized into five (5) groupings. The number of projects in each grouping and its associated subsection number in the full project description in Appendix A include:

- Terminal Projects (18 projects; Section 1.1)
- On-Airport Hotels (2 projects; Section 1.2)
- Airfield and Taxiway Improvements Not Required by the Terminal Projects (6 projects; Section 1.3)
- Support Facilities Not Required by the Terminal Projects (9 projects; Section 1.4)
- Air Traffic Actions for Offset Approach Procedures for Runway 10R/28L (Section 1.5)

The full project description and exhibits are provided in Appendix A.

The objectives of the Section 106 evaluation were to identify historic-age properties located within the Area of Potential Effects (APE) and determine if those properties are eligible for listing in the National Register of Historic Places (National Register). Fieldwork and documentation were completed based on procedures accepted by the FAA and Illinois State Historic Preservation Office (SHPO) and in accordance with the *Secretary of the Interior's Standards and Guidelines*.

## Section 2

### Historic Context

## 2. Historic Context

The following context discusses the development and evolution of O'Hare, including significant expansion and improvement efforts and construction of major buildings, in order to place surveyed properties within the appropriate historic context.

### A. O'Hare International Airport

#### (1) The beginning of O'Hare

In the 1920s commercial air service was a relatively new phenomenon in the United States, but the popularity of air travel increased quickly. The first municipal airport to serve the city of Chicago was Chicago Municipal Airport, later renamed Midway Airport, which opened in 1927 on the southwest edge of the city. Due in part to Chicago's central location within the country, passenger traffic at Chicago Municipal increased over 600 percent between 1931 and 1943. By the early 1940s the airport was operating well beyond its capacity. While Chicago's location within the country was a boon to business, the airport's location within the city was not. Surrounded by growing neighborhoods, Chicago Municipal had no room to grow. The need for more space to accommodate the ever-growing number of passengers and larger aircraft prompted the City of Chicago (City) to search out a location for a new airport.<sup>1</sup>

The development of O'Hare International Airport (O'Hare or "the airport") began in 1942, when the federal government purchased 1,000 acres near the hamlet of Orchard Place on the northwest outskirts of Chicago, which it leased to Douglas Aircraft (Douglas) to build and operate a factory constructing troop transports during World War II. The Orchard Place location was chosen for its proximity to established rail lines and a suburban work force. The Douglas factory closed its doors at the end of the war, but the expanded facilities and potential for future growth made Orchard/Douglas Field an ideal site for the City to build a new and larger airport. The federal government donated the airport property to the City, and the first commercial flights at Orchard/Douglas Field began in 1946. The airport was renamed Chicago O'Hare International Airport in 1949 in honor of the Chicago-born pilot Edward H. "Butch" O'Hare, who had been shot down in the Pacific during World War II. The village of Orchard Place was eventually absorbed by the expanding airport, but its legacy lives on in the airport identifier for O'Hare, ORD.<sup>2</sup>

#### (2) Burke's master plan for O'Hare

In the early 1940s, increased traffic at Midway Airport on the south side of Chicago prompted the City to study how to improve Chicago's ability to accommodate the nation's general trend of growing air travel. The City selected planner and civil engineer Ralph Burke to lead the study on how the City should grapple with this problem, and in 1944 Burke outlined his findings in the *Report of Commercial Airport Requirements for Chicago*. This report identified the existing Douglas manufacturing plant and associated airfield northwest of downtown Chicago as a potential site to develop as the City's second commercial airport, which eventually became the site of O'Hare. Burke believed the future of Chicago as a world-class city depended on a well-planned strategy to secure its position as a travel center, as air travel was envisioned as taking over rail travel—a mode of transportation for which Chicago had been the nation's leading center since the early twentieth century.<sup>3</sup>

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<sup>1</sup> David Brodherson, "All Airplanes Lead to Chicago: Airport Planning and Design in a Midwest Metropolis," in *Chicago Architecture and Design 1923-1993: Reconfiguration of an American Metropolis* (Chicago and Munich: The Art Institute of Chicago and Perstel-Verlog, 1993), 80–83.

<sup>2</sup> Richard P. Doherty, *The Origin and Development of Chicago-O'Hare International Airport (Dissertation)* (Muncie, Ind.: Ball State University, 1970), 9–11, 27; Anne Royston, "Chicago-O'Hare International Airport," in *AIA Guide to Chicago* (San Diego, New York and London: Harcourt Brace, 1993), 262.

<sup>3</sup> Brodherson, "All Airplanes Lead to Chicago: Airport Planning and Design in a Midwest Metropolis," 75.

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### Historic Context

Burke quickly drafted plans to develop O'Hare into a major international airport that could support the increasing demand at Midway and in the region and allow Chicago to remain a central city for transportation. O'Hare's first master plan in 1948 envisioned a "tangential scheme" design with multiple "split-finger" terminals extending from a central grand concourse.<sup>4</sup> This plan devised several runways radiating from the terminal building at incremental angles like a pinwheel, with a single roadway leading to parking areas fronting the central concourse (see Figure 1).<sup>5</sup> Burke's plan took a few years to materialize and his complete design was never fully constructed. By the time of his death in 1956 only one terminal (the original Terminal 1) had been completed, which was designed by Bill Priestley of Skidmore, Owings and Merrill (SOM).<sup>6</sup>



*Figure 1. 1948 drawing of Burke's proposed design for O'Hare featuring a central roadway approaching the grand concourse with split-finger terminals extending into the airfield. Note that Burke's terminology contrasts with modern airport terminology, in which the central structures are referred to as terminals leading to the concourses where aircraft arrive.<sup>7</sup>*

<sup>4</sup> Franz Schulze, *Oral History of Carty Manny* (Chicago: Art Institute of Chicago, 1995), 184.

<sup>5</sup> Schulze, *Oral History of Carty Manny*, 184.

<sup>6</sup> Schulze, *Oral History of Carty Manny*, 181; Brodherson, "All Airplanes Lead to Chicago: Airport Planning and Design in a Midwest Metropolis," 262.

<sup>7</sup> Ralph H. Burke, *Master Plan of Chicago Orchard (Douglas) Airport* (Prepared for the City of Chicago, January 1948), 22, available in Transportation Library Digital Collections: Chicago O'Hare International Airport, <https://archive.org/details/masterplanofchic00burk>, Northwestern University Transportation Library.

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Following the construction of the first terminal, the new commercial jet aircraft revealed the shortcomings of Burke's initial plan. The Boeing 707 and Douglas DC-8 not only carried twice as many passengers as earlier commercial aircraft but required longer runways and more space at the terminal gates to accommodate wider wingspans. The deliveries of these new jet-engine-powered aircraft to the main airliners was set to begin in 1958 and increase in 1959, which put pressure on Chicago to hasten the planning process and to ensure these aircraft could be accommodated through upgrades at O'Hare.<sup>8</sup>

There were a few additional issues with Burke's plan. The radiating runway design of Burke's "tangential scheme" presented risk related to potential aircraft collisions, due to the convergence of multiple runways.<sup>9</sup> Burke's plan had also underestimated the role of the automobile in air travel. By 1960 a new highway was completed between the Chicago Loop and O'Hare with space in the median for a future commuter train line.

In 1955 Mayor Richard Daley commissioned the architectural firm Naess & Murphy to review Burke's original plan and build upon it with larger terminals and greater automobile access. Naess & Murphy selected Stanislaw Z. Gladych as the chief designer for the O'Hare project alongside Carter Manny, Jr.<sup>10</sup> The design and planning team partnered with the Cincinnati-based airport consulting firm Landrum & Brown to complete the new airport design and to work with existing airlines at O'Hare to accommodate individual needs, and assess the airline's statistics for anticipated future air traffic. In assisting with the design, Landrum & Brown focused on the concepts of "concentration, consolidation, and connections."<sup>11</sup> By this time, the expansion of O'Hare had become the largest public project in the history of Chicago.<sup>12</sup>

### (3) Naess & Murphy master plan design

By 1958 Naess & Murphy had redesigned Burke's 1948 plan to eliminate the grand, single terminal building for a more favorable, widened, U-shape terminal arrangement. This plan was selected for reasons of economy and efficiency, including the assurance that this U-shape design would allow for "more maneuvering and parking room for planes" and would enhance ground transportation around the terminals for efficient curbside passenger loading and unloading in the growing automobile age.<sup>13</sup> Additionally, this plan could better accommodate any potential future airport expansion projects than could Burke's single terminal design. Under Naess & Murphy's plan, two additional terminals were proposed to operate alongside the original terminal building, which was to undergo some alterations to serve as O'Hare's new international terminal. This scheme maintained some of Burke's "split-finger" Y-shaped concourses, and alternated with simpler, linear concourses (see Figure 2). A central circular

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<sup>8</sup> Naess & Murphy, Landrum & Brown, and James P. O'Donnell, *Chicago O'Hare International Airport Engineering Report: First Stage Development Program* (Prepared for the City of Chicago, 1958), 3, Available in Transportation Library Digital Collection: Chicago O'Hare International Airport <https://archive.org/details/chicagoohareinte00odon>, Northwestern University Transportation Library.

<sup>9</sup> Schulze, *Oral History of Carty Manny*, 188.

<sup>10</sup> "Stanislaw Z. Gladych Dies; Designed O'Hare Terminals," *Chicago Tribune*, January 4, 1982.

<sup>11</sup> American Institute of Architects et al., *AIA Guide to Chicago* (San Diego, New York and London: Harcourt Brace, 1993), 262.

<sup>12</sup> American Institute of Architects et al., *AIA Guide to Chicago*, 275.

<sup>13</sup> Thomis, Wayne, "Newest O'Hare Plan Results in More Room," *Chicago Daily Tribune*, March 5, 1958, sec. 1.



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restaurant building was proposed to be constructed between the two new terminals, and an area to the northeast of the three terminal buildings was proposed as a utilitarian area with a Heating and Air Conditioning Plant (later referred to as the Heating & Refrigeration Plant) and other support buildings.<sup>14</sup>



*Figure 2. Image of the proposed new terminal buildings and plan for O'Hare based on the 1958 master plan.*<sup>15</sup>

Landrum & Brown encouraged extensive use of concession spaces to maintain traveler comfort and focused on a centralized location for principal concessions. This concept developed into the proposal for two, multi-story, circular buildings to be located between the terminals that would house a restaurant and other concessions.<sup>16</sup> The proposal to design a circular building between the western new terminal and the existing terminal building was abandoned, and the Rotunda was the only circular building retained in the final design.

The two terminal buildings were originally referred to as Terminal C and Terminal D; however, by the time of completion the terminals were labeled Terminal 2 and Terminal 3, respectively, with Concourse G

<sup>14</sup> Naess & Murphy, Landrum & Brown, and O'Donnell, *Chicago O'Hare International Airport Engineering Report: First Stage Development Program*, 9.

<sup>15</sup> Naess & Murphy, Landrum & Brown, and O'Donnell, *Chicago O'Hare International Airport Engineering Report: First Stage Development Program*, 9.

<sup>16</sup> Schulze, *Oral History of Carty Manny*, 228.



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extending south from the Rotunda.<sup>17</sup> In his design for the concourses, Gladych devised a modular system based on 5-foot intervals, where all spaces had dimensions in multiples of 5 feet. This modular system ensured uniformity among use by multiple airlines and ease of potential future concourse expansion. In this scheme, the concourse corridors were designed to be 20 feet in width, and projecting hold rooms to be 15 feet in length.<sup>18</sup> According to Manny, Gladych had implemented this system with the assumption that the spaces between these projecting hold rooms would be infilled over time to accommodate increased aircraft parking.<sup>19</sup> While this standardization allowed the design to be consistent throughout, particular airlines continued to operate with their own preferred methods, including differences in aircraft parking and enplaning procedures. The center split Y concourses were designed to have additional space above the rooflines to serve as public observation decks, to provide viewing space for passengers.<sup>20</sup> This amenity reflected the character of the jet age, with public enthusiasm for the new jet-engine-powered aircraft and an increased interest in air travel.

Similar to other major airports that had been operating at the time, the master plan implemented the dual-level roadway system to separate departure passengers from arrival passengers for efficiency.<sup>21</sup> One of the earliest examples of this separation was at the Washington National Airport (now Ronald Reagan Washington National Airport); however, in this case it was not a dual-level roadway. Instead, the terminal building was constructed on a slope, with the separation built into the interior plan only. For O'Hare, this design not only allowed for the interior levels to be tailored to functions related to inbound and outbound passengers, but also prevented unnecessary transferring between levels for outbound passengers entering from the roadway through ticketing, then from the concourse to the aircraft. Features designed for passenger comfort included the development of canopies to provide passengers with shelter while enplaning and deplaning in inclement weather, where airlines did not desire to utilize telescoping or swinging jet bridges.<sup>22</sup>

The interior of the new terminal buildings included a first floor with mezzanine level, where the mezzanine would provide "airline offices, rental offices, airline clubs, and airport administrative offices," with baggage claim at the lower level.<sup>23</sup> The design and dimensions of the interiors were influenced by minimum size requirements for ticket counters and circulation space determined by Landrum & Brown, as well as the

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<sup>17</sup> Naess & Murphy, Landrum & Brown, and O'Donnell, *Chicago O'Hare International Airport Engineering Report: First Stage Development Program*, 30.

<sup>18</sup> Schulze, *Oral History of Carty Manny*, 212.

<sup>19</sup> Schulze, *Oral History of Carty Manny*, 212.

<sup>20</sup> Naess & Murphy, Landrum & Brown, and O'Donnell, *Chicago O'Hare International Airport Engineering Report: First Stage Development Program*, 34–35.

<sup>21</sup> Naess & Murphy, Landrum & Brown, and O'Donnell, *Chicago O'Hare International Airport Engineering Report: First Stage Development Program*, 30.

<sup>22</sup> City of Chicago, Department of Aviation, "Annual Report 1961," 1961, 12–13, Available in Transportation Library Digital Collection: Chicago O'Hare International Airport <https://archive.org/details/annualreport1961chic>, Northwestern University Transportation Library; "Our Two Largest Airports," *Progressive Architecture* XLIV, no. 8 (August 1963): 102.

<sup>23</sup> Naess & Murphy, Landrum & Brown, and O'Donnell, *Chicago O'Hare International Airport Engineering Report: First Stage Development Program*, 31.

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interior design vision of Harvey Stubsjoen from Naess & Murphy.<sup>24</sup> Stubsjoen designed the signage, ticket counters, and areas for public seating and established design standards with Hayward Blake, a graphics consultant, to retain consistency and uniformity among the varied branding elements of individual airlines.<sup>25</sup> Stubsjoen commissioned Charles Eames to design chairs in the waiting areas of the terminal, which developed into the tandem-sling chairs that were used throughout O'Hare.<sup>26</sup> These chairs were manufactured through Herman Miller and influenced seating design in other airports, including Dulles International Airport.

Terminal 2 and Terminal 3 were both completed in 1961 and opened to passenger travel on January 15, 1962, ahead of schedule (see Figure 3 and Figure 4). At this time, the Rotunda was in the beginning stages of its construction, due to its supporting role in the overall function of the airport and would not be completed until 1963. As Concourse G had been completed and opened at the same time as the new terminals, a temporary walkway was constructed around the Rotunda for through-access.



Figure 3. View of Terminal 2 at night showcasing Naess & Murphy's minimal modernist design, 1962.<sup>27</sup>

<sup>24</sup> Schulze, *Oral History of Carty Manny*, 211.

<sup>25</sup> Schulze, *Oral History of Carty Manny*, 211–13.

<sup>26</sup> Schulze, *Oral History of Carty Manny*, 223.

<sup>27</sup> Kori Rumore, "From Farmland to 'Global Terminal': A Visual History of O'Hare International Airport," *Chicago Tribune*, March 27, 2019, <https://www.chicagotribune.com/news/ct-ohare-international-airport-development-history-timeline-htmlstory.html>.

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Figure 4. Interior, southern concourse portion of the main terminal building at Terminal 3.<sup>28</sup>

#### (4) Opening and critical reception

O'Hare's new terminal buildings opened on January 15, 1962, and O'Hare's expansion was formally dedicated in March 1963, upon completion of the Rotunda. The opening was heralded with a ceremony that included President John F. Kennedy, Chicago Mayor Richard J. Daley, the design team for the new terminals, and other prominent civic leaders. By this time, Naess & Murphy had been renamed C.F. Murphy Associates (C.F. Murphy) after the retirement of partner Sigmund Naess.<sup>29</sup>

C.F. Murphy was honored in 1963 by the Chicago Association of Consulting Engineers for the design of the terminal buildings and Rotunda.<sup>30</sup> An August 1963 issue of *Progressive Architecture* outlined the

<sup>28</sup> "Our Two Largest Airports," 108.

<sup>29</sup> After Sigmund Naess's retirement in 1959, the firm was renamed C.F. Murphy in 1960.

<sup>30</sup> City of Chicago, Department of Aviation, "Annual Report 1963," December 31, 1963, 6, Available in Transportation Library Digital Collection: Chicago O'Hare International Airport Available in Transportation Library Digital Collection: Chicago O'Hare International Airport <https://archive.org/details/annualreport1963chic>, Northwestern University Transportation Library.

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### Historic Context

design of the new O'Hare plan, stating that it “lacks the brilliance and originality of Dulles” but with strength in details such as “the meticulous care with which the individual buildings were designed; in the expert integration of structural and mechanical services; in the orderly and craftsman-like execution of the interiors, which have visual harmony in spite of the diverse requirements of 13 different airlines; and in the well-designed adjunct service structures, such as the fire station, the heating and refrigeration plant, and the central telephone exchange...”<sup>31</sup>

In 1962, following the completion of Terminals 2 and 3, operations at Midway Airport were transferred to O'Hare, which soon became, and has remained, one of the busiest airports in the United States.<sup>32</sup> Every major American city could be reached from Chicago on relatively short flights, which established O'Hare as a primary location for connecting flights across the country. The fact that O'Hare had been specifically designed to accommodate the jet liners of the 1950s and 1960s added to its importance as a major airport.

#### (5) Later expansion

Further improvements to O'Hare included the construction of a new control tower in 1970 (the present Chicago Department of Aviation [CDA] Control Tower). This control tower, based on a standardized design developed for the FAA by I.M. Pei & Associates in the early 1960s, was constructed in front of the terminals.<sup>33</sup> It was also around this time that ramp towers were constructed at the apex of the Y-shape concourses of Terminals 2 and 3 to monitor and control ground traffic around the concourses. A new hotel and parking garage, both designed by C.F. Murphy, were completed in 1972 and 1973, respectively. At the time of construction, the parking garage at O'Hare was the largest in the world.<sup>34</sup> Part of this project included the construction of multiple pedestrian tunnels linking the parking garage and hotel with each of the three terminal buildings.<sup>35</sup>

In 1975 the consulting group O'Hare Associates began exploring a \$1 billion upgrade plan for O'Hare, which would later be influenced by the Airline Deregulation Act of 1978, as well as design- and operational-related goals.<sup>36</sup> Passenger and airfield traffic was expected to rise through the 1980s and 1990s, and the increased use of wide-body “jumbo jet” aircraft such as the Boeing 747, the McDonnell Douglas DC-10, and the Lockheed L-1011 TriStar influenced the need to expand existing concourses at

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<sup>31</sup> “Our Two Largest Airports,” 103.

<sup>32</sup> The transfer of operations from Midway was temporary as flights returned to Midway in 1964. “Chicago Department of Aviation | O'Hare and Midway International Airports,” *Midway History*, accessed July 31, 2019, <https://www.flychicago.com/business/CDA/Pages/Midway.aspx>.

<sup>33</sup> Philip Jodido and Janet Adams Strong, *I.M. Pei: Complete Works* (New York: Rizzoli, 2008), 93–95.

<sup>34</sup> American Institute of Architects et al., *AIA Guide to Chicago*, 265–67; David Brodherson, “‘An Airport in Every City’: The History of American Airport Design,” in *Building for Air Travel: Architecture and Design for Commercial Aviation* (Munich and New York: Prestel and The Art Institute of Chicago, 1996), 84.

<sup>35</sup> C.F. Murphy Associates, “Elevated Parking Structure,” September 15, 1968, Available in the Chicago Department of Aviation files, Chicago.

<sup>36</sup> O'Hare Associates was a joint venture led by Murphy/Jahn (previously C.F. Murphy & Associates). Allen L. Pomerance, “O'Hare's Showstopper Terminal,” *Civil Engineering* (New York) 57, no. 11 (1987): 40–43.

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Terminal 2 and Terminal 3.<sup>37</sup> Additionally, increased security needs and individual airlines' desires for more modern appearances initiated interior design changes to Terminal 2, Terminal 3, and their associated concourses.

In 1980 the O'Hare Development Program (ODP) evolved to include a proposal for the expansion of Terminal 3 and construction of a new associated concourse, additional pedestrian tunnel to the parking garage, construction of a new Terminal 1, and relocation of flight kitchen and maintenance facilities.<sup>38</sup> Also included in the ODP was the expansion of concourses in Terminals 2 and 3, building a new international terminal (Terminal 5), and an Airport Transit System (ATS, or "people mover") to transport travelers to more distant parking areas (see Figure 5). The first phases of the expansion plan were completed in the 1980s with the addition of Concourse L and expansion of Terminal 3 (1984). Concourse L, occupied by Delta Airlines, was the first concourse at O'Hare designed specifically as a hub. During this time, the designs for work by O'Hare Associates on various buildings was overseen by the architecture firm Murphy/Jahn. In addition to the ODP, the Chicago Transit Authority (CTA) constructed a new rail transit station beneath the parking garage and hotel, which was completed in 1984.<sup>39</sup>

The centerpiece of the ODP was United Airlines' new Terminal 1 building designed by Helmut Jahn of Murphy/Jahn, which would replace the 1955 international terminal. Construction on Terminal 1 began in 1986 and was completed in 1988. The new international terminal (Terminal 5) opened in 1993, marking the end of the ODP phase of improvements.

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<sup>37</sup> Young, David, "FAA Gives OK to Start Rehabilitation of O'Hare," *Chicago Tribune*, July 23, 1982, sec. 2.

<sup>38</sup> Young, David, "FAA Gives OK to Start Rehabilitation of O'Hare"; O'Hare Associates, *O'Hare...Tomorrow...Today: The Chicago O'Hare International Airport Development Program*, October 1983, 4.

<sup>39</sup> "The Fascinating History of Chicago's O'Hare International Airport 1920-1960"; Robert Davis, "United Plans \$100 Million New Terminal at O'Hare," *Chicago Tribune*, September 20, 1980; David Young, "United Plans New O'Hare Terminal," *Chicago Tribune*, December 10, 1982; John Camper, "O'Hare Project Picks up: Expansion Enters Peak Year of Construction," *Chicago Tribune*, March 1, 1987; O'Hare Associates, "Progress Report, Chicago-O'Hare International Airport Development Program, June 1984," 1; Gary Washburn, "World at City's Doorstep as New O'Hare International Terminal Takes Wing," *Chicago Tribune*, May 28, 1993.



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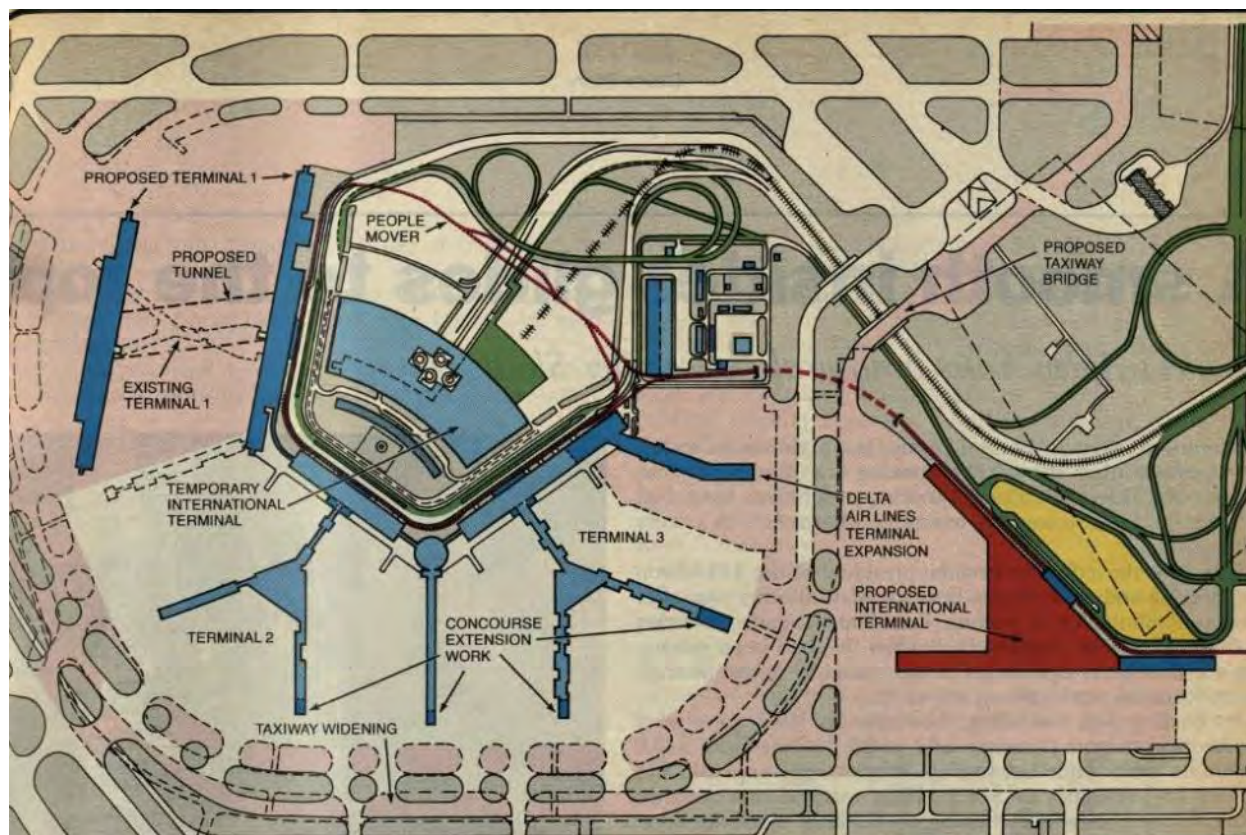


Figure 5. Overview of the O'Hare Development Program, 1984.<sup>40</sup>

Further improvements to O'Hare included the construction of three FAA control towers: the Main Control Tower built in 1996 near the present CDA Control Tower, the North Control Tower in 2008, and the South Control Tower in 2015.

Throughout the expansion of O'Hare in the 1960s to the present, secondary facilities such as fire stations, maintenance facilities, and cargo buildings were constructed to support the airport's operations. By 1962 the northwest corner of the airport was being used by individual airlines for hangars, and the northeast corner of the airport was in use by the U.S. Air Force. Following the 1963 opening ceremony for O'Hare's new terminals, freight buildings were being constructed in a designated cargo area of the airport located to the southeast of the Terminal Core.<sup>41</sup> Other support buildings, including catering buildings for in-air dining meal preparation, also continued to be constructed around the airport during the 1960s.<sup>42</sup> The Air Force ceased operations at O'Hare, and the associated northeast corner of the airport was altered to accommodate additional cargo buildings. By 1989 a third cargo area was established, with several buildings clustered to the southwest of the Terminal Core. This cargo area made O'Hare the largest mid-continent market for freight transport and is still in use today by a variety of airline cargo divisions.<sup>43</sup>

<sup>40</sup> "O'Hare Airport Expansion Takes Off," *Engineering News-Record* 212, no. 19 (May 10, 1984): 27.

<sup>41</sup> City of Chicago, Department of Aviation, *Annual Report 1964*, 1964, 11, Available in Transportation Library Digital Collection: Chicago O'Hare International Airport, Northwestern University Transportation Library, <https://archive.org/details/annualrepor1964chic>.

<sup>42</sup> City of Chicago, Department of Aviation, *Annual Report 1964*, 11.

<sup>43</sup> Information about this third cargo area was obtained from text on an interpretive sign within the Concourse L Stinger, showing the history of O'Hare development with a timeline and associated aerial photographs.

## Section 2

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### 3. Area of Potential Effect

#### A. Determining the APE

The APE is defined in Section 106 regulations as “the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties. The APE is influenced by the scale and nature of the undertaking and may be different for different kinds of effects caused by the undertaking.”<sup>44</sup>

It is understood that the physical impact components of the proposed undertaking would take place entirely on airport land that has been previously disturbed. Due to this prior land disturbance, the APE addresses historic properties that are part of the built environment only (i.e., it is specific to historic buildings and therefore archaeological sites are not considered). An APE was not established for archaeology and no archaeological investigations are being conducted.

A project's potential effects under Section 106 are those that may be triggered by application of the criteria of adverse effect, defined as follows:

An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.

Adverse effects on historic properties include, but are not limited to:

- (i) Physical destruction of or damage to all or part of the property;
- (ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary's standards for the treatment of historic properties (36 CFR part 68) and applicable guidelines;
- (iii) Removal of the property from its historic location;
- (iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- (v) Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features;
- (vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and

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<sup>44</sup> As defined under Section 106, “*Historic property* means any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior.” “36 CFR Part 800 - Protection of Historic Properties,” July 1, 2012, Section 800.16(d), pages 108-109, <https://www.govinfo.gov/content/pkg/CFR-2012-title36-vol3/pdf/CFR-2012-title36-vol3-chapVIII.pdf>.

## Section 2

### Historic Context

(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.<sup>45</sup>

The APE for historic properties was defined by reviewing the project description proposed undertaking to identify potential effects to historic properties that are located on-airport, which is defined as within the airport property boundary, and off-airport, defined as outside of the airport property boundary but within reach of potential impacts. The APE is depicted on two maps: one for on-airport and one for off-airport (see Section 3).

#### (1) On-airport APE

The On-Airport APE map is provided in Figure 6. Effects were identified based on the proposed action described in Section 1. On-airport effects considered potential visual, atmospheric, or audible changes. The addition of new airport buildings would not have a visual or atmospheric impact on buildings that are aviation-related due to their compatibility of purpose; O'Hare is an airport and all existing and future on-airport uses would be related to or supporting aviation uses. A new building adjacent to an existing airport building would not visually impair or otherwise affect its ongoing activities, features, attributes, or character. Potential noise and vibration effects were also specifically considered. O'Hare will remain an active airport throughout the proposed project requiring maintained use of land and airside facilities. On-airport buildings are already subject to noise from airport operations and, as aviation uses, are not noise-sensitive. During project construction the CDA proposes to implement construction specifications that will protect neighboring buildings from vibration. As a result, potential noise and vibration effects were found to be inapplicable to on-airport buildings.

The CDA's general construction contract General Conditions, Section XIV – Protection of Persons and Property, Health and Safety, Services and Use of Site, Paragraph 3a. Protection of Existing Structures and Property states, "The Contractor must avoid damage, as a result of its operations, to trees, plant life, existing sidewalks, curbs, streets, alleys, pavements, utilities, adjoining property, the work of other contractors and the property of the City, FAA, and others and will at its own expense repair any damage thereto caused by its operations." Paragraph 3c states "... the Contractor will shore-up, brace, underpin, secure, and protect as may be necessary all foundations and other parts of existing structures adjacent to, adjoining and in the vicinity of the site, which may be in any way affected by the excavations or other operations connected with the Work." The general conditions are provided in Appendix B. As a result, there is no anticipated vibration impact to on-airport buildings and therefore no anticipated effect.

Table 1 in Section 4 provides a listing of on-airport buildings within the APE.

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<sup>45</sup> "36 CFR Part 800 - Protection of Historic Properties," Section 800.5, pages 92-93.



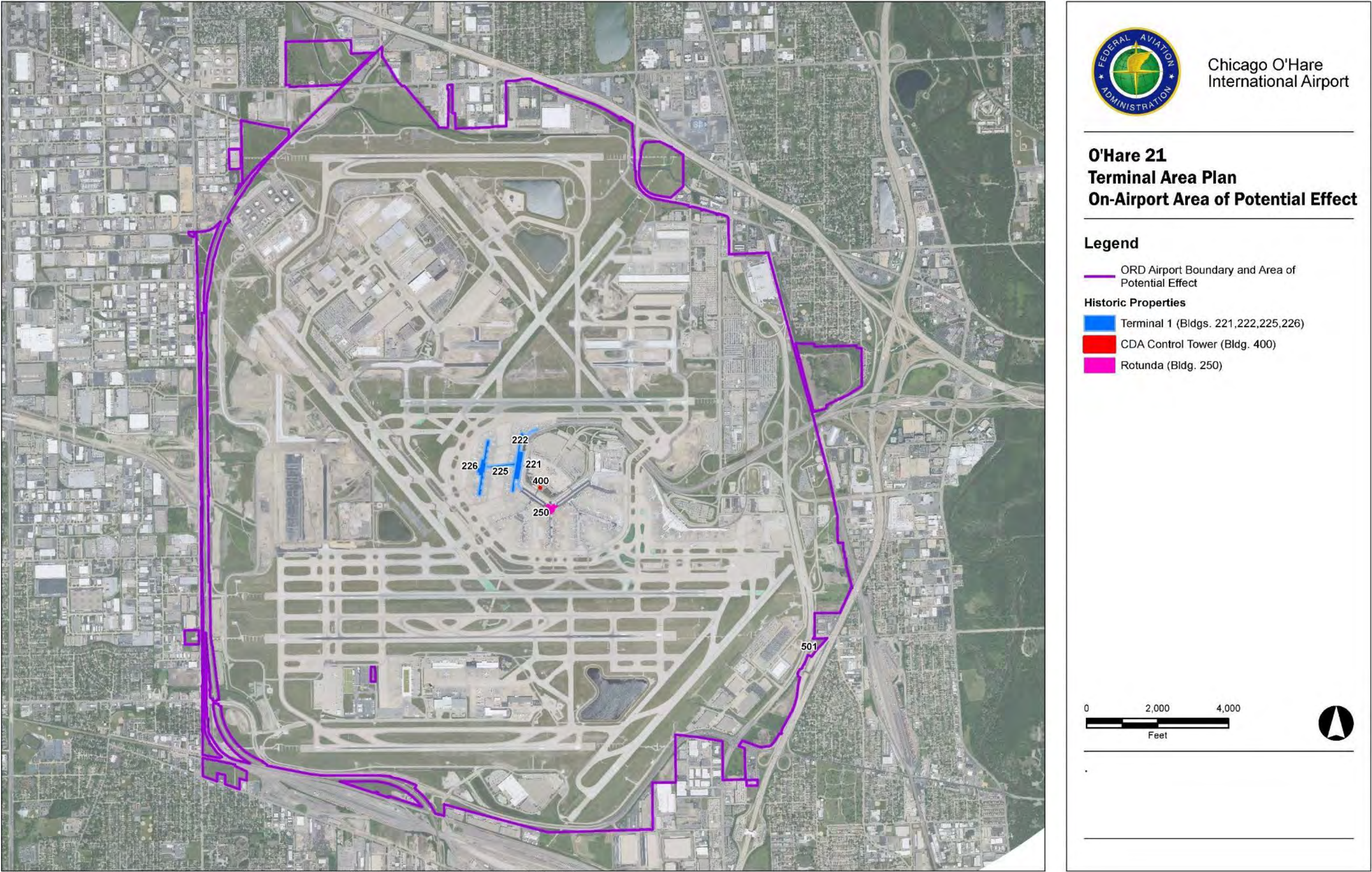


Figure 6. On-airport APE map.



## (2) Off-airport APE

The Off-Airport APE map is provided in Figure 7. No effects to off-airport properties are anticipated due to proposed construction activities.

Off-airport effects were evaluated for potential visual, atmospheric (such as air quality changes, etc.), or audible changes. No visual or atmospheric effects to off-airport historic properties are anticipated with the proposed project. The addition of new airport buildings that are aviation-related would not have visual or atmospheric impacts to off-airport properties because they would be far from off-airport historic properties and have a similar purpose and usage to current airport buildings. New airport buildings would not visually impair or otherwise affect the ongoing activities, features, attributes, or character of off-airport historic properties. Atmospheric effects will be considered for impact to off-airport properties. However, this has a low potential for impact to off-airport properties.

Auditory (or noise) impacts, however, may affect these properties. The FAA uses a 65 Day-Night Average Sound Level (DNL) as the threshold for potential noise impacts to historic properties. The 65 DNL is typically the noise level at which airports implement sound attention programs that are applicable to incompatible land use structures. To establish the APE to consider potential noise effects, the 65 DNL decibel (dB) noise contour was used from the *2020 Interim Condition Noise Contour* from the 2015 Written Re-Evaluation of the 2005 O'Hare Modernization Program Environmental Impact Statement (OMP EIS), with a substantial buffer that "rounds" the contour out to significant natural, man-made, or political jurisdictional boundaries.<sup>46</sup> The purpose of the buffer was to recognize that the 65 DNL dB noise contour for the TAP undertaking has not yet been determined; however, the contour, once defined, is expected to fall entirely within the buffer as the lateral extent has been established to be sufficiently extensive to capture changes in the 65 DNL contour occurring as a result of the undertaking.<sup>47</sup> Off-airport historic properties within this APE have the potential to be impacted by increased noise from airport operations with or without the proposed project.

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<sup>46</sup> This particular contour was chosen because it represents noise levels from a condition most similar to levels that will be present under the proposed TAP Build Out airport layout. The contour includes updates to modeling methods that occurred since the publication of the 2005 OMP EIS.

<sup>47</sup> The lateral extent of buffer is further defined by the following: The extent of the area defined by the 65 DNL contour intersects several cities and towns. The area within city/municipal boundaries intersecting the 65 DNL contour was appended to form the buffer, but only to the intersections with major roadways and natural features (e.g., rivers, lakes, etc.) beyond the DNL contour.



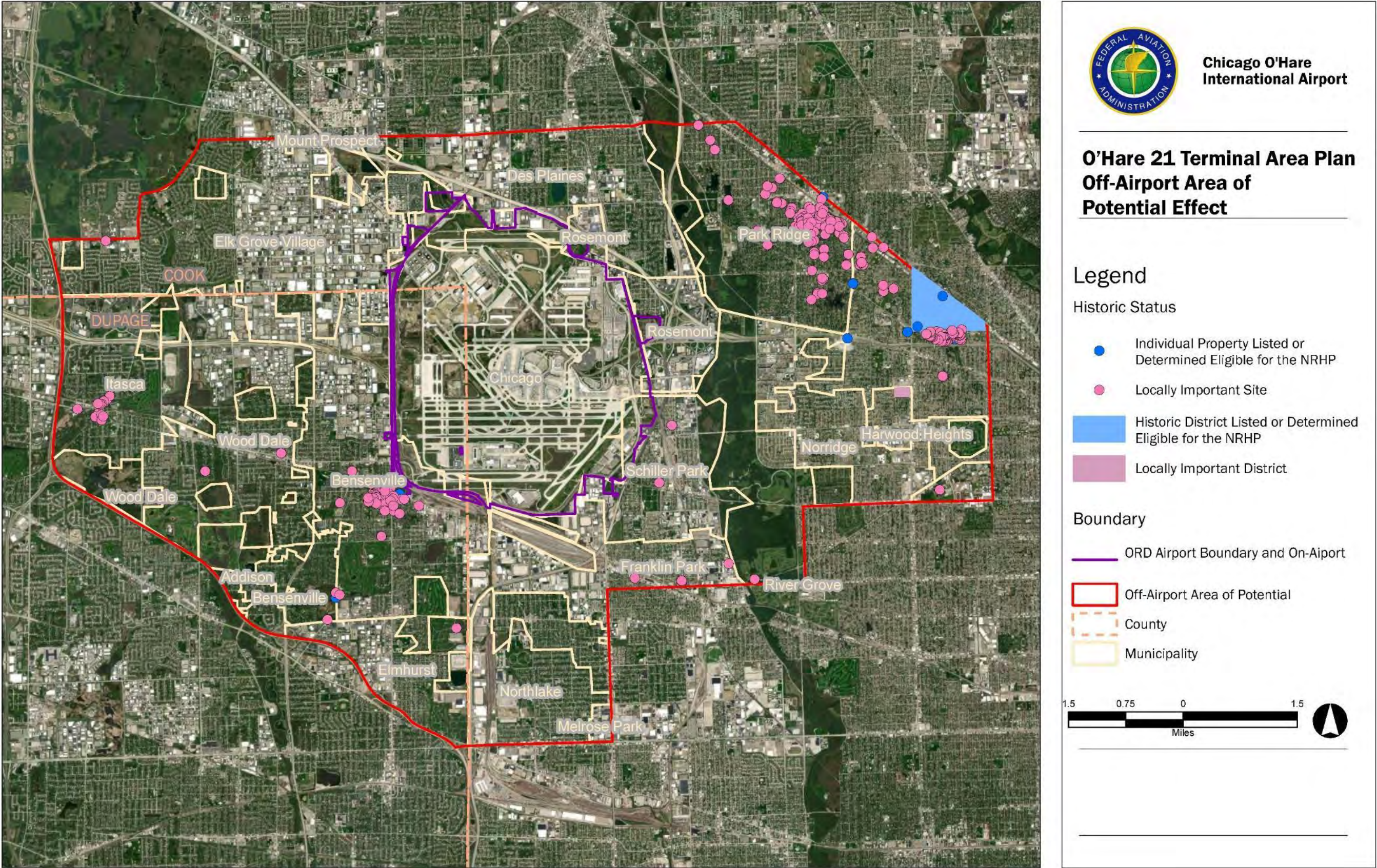


Figure 7. Off-airport APE map.



## Section 4

### Identifying Historic Properties

## 4. Identifying Historic Properties

The identification of historic properties is conducted to support FAA requirements for compliance with Section 106 regulations. Historic properties within the APE were identified following the methodology described below.

### A. On-airport historic properties

Within the on-airport APE, historic properties were identified using survey and evaluation procedures accepted by the FAA and Illinois State Historic Preservation Office (SHPO). Buildings that have potential architectural or historic significance were evaluated applying National Register of Historic Places (National Register) criteria; in order to be evaluated, they must be of sufficient age to meet the National Register threshold (i.e., 50 years old by 2032<sup>48</sup>) or have potential to meet National Register *Criteria Consideration G: Properties that have achieved significance within the past fifty years*. A Determination of Eligibility (DOE) was prepared for buildings with potential significance. An individual DOE was prepared for seven buildings that met the age threshold and/or had potential significance. Four buildings within the on-airport APE that met the age threshold but had no potential for significance were surveyed and evaluated in an inventory form; no further work is recommended (see Appendix C). Three buildings do not meet the age threshold and have no potential for significance; no survey was conducted of these. Table 1 summarizes the on-airport buildings within the APE and the evaluation documentation prepared.

**Table 1. On-airport buildings within the APE<sup>49</sup>**

Building Name and ALP/CDA Building Number	Date completed	Evaluation documentation and eligibility determination
Terminal 1 (including Concourses B and C) Building Nos. 221, 222, 225, and 226 <sup>50</sup>	1988	DOE prepared – determined eligible
Terminal 2 (including Concourses E and F) Building Nos. 200, 205, 210, and 215 <sup>51</sup>	1962	DOE prepared – determined not eligible
Terminal 3 (including Concourses H, K and L) Building Nos. 300, 305, 310, 315, and 320 <sup>52</sup>	1962	DOE prepared – determined not eligible
Rotunda Building No. 250 <sup>53</sup>	1963	DOE prepared – determined eligible
Concourse G Building No. 260	1962	No potential for significance – evaluation in inventory form

<sup>48</sup> 2032 is the latest year in this analysis

<sup>49</sup> Rest Haven Cemetery located on W. Cargo Road is located on airport property and has been previously determined eligible for the National Register. However, the historic property is not located within the on-airport APE.

<sup>50</sup> Mead & Hunt, Inc., *Determination of Eligibility: Terminal 1* (Prepared for the Federal Aviation Administration, August 2019).

<sup>51</sup> Mead & Hunt, Inc., *Determination of Eligibility: Terminal 2* (Prepared for the Federal Aviation Administration, November 2019).

<sup>52</sup> Mead & Hunt, Inc., *Determination of Eligibility: Terminal 3* (Prepared for the Federal Aviation Administration, November 2019).

<sup>53</sup> Mead & Hunt, Inc., *Determination of Eligibility: Rotunda* (Prepared for the Federal Aviation Administration, November 2019).

## Section 4

### Identifying Historic Properties

**Table 1. On-airport buildings within the APE<sup>49</sup>**

Building Name and ALP/CDA Building Number	Date completed	Evaluation documentation and eligibility determination
CDA Control Tower (City Tower) Building No. 400 <sup>54</sup>	1970	DOE – determined eligible
Heating and Refrigeration Building (Building No. 450) including City Substation (451), RB 40 Substation (472) and cooling towers (456, 457, and 460) <sup>55</sup>	1961	DOE – determined not eligible
O'Hare Telephone Building (Building No. 464) and Garage (466); currently known as AT&T Building and former AT&T Garage <sup>56</sup>	1961	DOE –determined not eligible
CDA Communications Service Center/North Airfield ARFF Station #4 Building No. 701	1971	No potential for significance – evaluation in inventory form
Former Delta Cargo (now vacant) Building No. 527	1973	No potential for significance – evaluation in inventory form
Outside Plumber Shop Building No. 523	1973	No potential for significance – evaluation in inventory form
FAA Main Airport Traffic Control Tower Building No. 402	1995	No survey or DOE – does not meet age threshold and no potential for significance
Airport Transit System (ATS) (Terminal 2 Station, Building No. 206)	1993	No survey or DOE – does not meet age threshold and no potential for significance
Terminal 5 Building No. 325	1993	No survey or DOE – does not meet age threshold and no potential for significance

Individual DOEs were prepared to evaluate the National Register eligibility of seven properties in the on-airport APE for listing in the National Register were submitted as stand-alone reports. The DOEs were submitted by FAA to SHPO for concurrence on eligibility recommendations, as follows.

- The FAA submitted the DOE for Terminal 1 to the Illinois SHPO with a request to concur that the property displays significance under National Register *Criterion C: Architecture*, including meeting *Criteria Consideration G: Properties that have achieved significance in the past fifty years*, and retains sufficient historic integrity to convey this significance and recommended Terminal 1 as eligible for listing in the National Register. SHPO responded on September 12, 2019, with its

<sup>54</sup> Mead & Hunt, Inc., *Determination of Eligibility: City of Chicago Department of Aviation Control Tower* (Prepared for the Federal Aviation Administration, November 2019).

<sup>55</sup> Mead & Hunt, Inc., *Determination of Eligibility: Heating & Refrigeration Plant Complex* (Prepared for the Federal Aviation Administration, November 2019). The DOE for the Heating and Refrigeration Building included the associated City Substation (451), RB 40 Substation (472), and cooling towers (456, 457, and 460). The City Substation (451) is not part of the TAP EA and was included in NEPA as part of OM EIS Re-Eval Memo approved 7/20/2020.

<sup>56</sup> Mead & Hunt, Inc., *Determination of Eligibility: O'Hare Telephone Building and Garage* (Prepared for the Federal Aviation Administration, November 2019). The DOE for the O'Hare Telephone Building included the associated garage (Building No. 466). The garage removal is not part of the TAP EA and was included in NEPA as part of OM EIS Re-Eval Memo approved 7/20/2020.

## Section 4

### Identifying Historic Properties

concurrence that the property meets *Criterion C*, including *Criteria Consideration G*, at the national level of significance.

- The FAA submitted the DOE for Terminal 2 to the Illinois SHPO with a request to concur that the property is not eligible for listing in the National Register. SHPO responded on December 18, 2019 with its concurrence on this finding.
- The FAA submitted the DOE for Terminal 3 to the Illinois SHPO with a request to concur that the property is not eligible for listing in the National Register. SHPO responded on December 18, 2019 with its concurrence on this finding.
- The FAA submitted the DOE for the Rotunda to the Illinois SHPO with a request to concur that the property displays significance under *Criterion A* in the area of Transportation and *Criterion C* in the area of Architecture, and retains sufficient integrity to convey both areas of significance and recommended as eligible for listing in the National Register. SHPO responded on December 18, 2019 with its concurrence on this finding.
- The FAA submitted the DOE for the CDA Control Tower to the Illinois SHPO with a request to concur that the property displays significance under *Criterion A* in the area of Transportation and *Criterion C* in the area of Architecture and retains sufficient integrity to convey both of these areas of significance and recommended as eligible for listing in the National Register. SHPO responded on December 18, 2019 with its concurrence on this finding.
- The FAA submitted the DOE for O'Hare Telephone Building to the Illinois SHPO and recommended the building as not eligible for listing in the National Register. SHPO responded on December 18, 2019, with a finding that the O'Hare Telephone Building was eligible for the National Register. FAA sent documentation to the Keeper on March 20, 2020 and a request for their determination. The Keeper responded on May 5, 2020 that the O'Hare Telephone Building is not eligible.
- The FAA submitted the DOE for the Heating & Refrigeration Plant Complex to the Illinois SHPO with a request to concur that the property displays significance under *Criterion A* in the area of Transportation and *Criterion C* in the areas of Engineering and Architecture, but does retain sufficient integrity to convey this significance and recommended as not eligible for listing in the National Register. SHPO responded on December 18, 2019 with its concurrence on this finding.

In summary, three on-airport properties were determined eligible for the National Register: Terminal 1, the CDA Control Tower, and the Rotunda. FAA and SHPO correspondence and concurrence letters for DOEs are included in Appendix D. See Figure 6 for location of on-airport historic properties.

## Section 4

### Identifying Historic Properties

#### B. Off-airport historic properties

Within the off-airport APE, historic properties (listed in or determined eligible for the National Register) and/or locally important sites were identified following the process utilized in the 2005 OMP EIS. This process involved outreach to communities (county, townships, and municipalities) and local historical societies and organizations that may have knowledge and information about historic sites within the APE. Additionally, a background literature and database search was conducted to identify inventoried properties that are listed in or eligible for the National Register or State Register of Historic Places, in addition to Certified Local Government (CLG)-designated properties and properties that have been locally designated or recognized by a municipality, county, or historical society within the APE.<sup>57</sup>

To identify historic properties and locally important sites, the following sources were examined or contacted:

- Properties (records) in the Historic Architectural and Archaeology Resources Geographic Information System (HARGIS) maintained by the Illinois Historic Preservation Agency (IHPA)<sup>58</sup>
- Properties listed in the Chicago Historic Resources Survey (CHRS) maintained by the City of Chicago<sup>59</sup>
- Outreach to local government agencies and organizations within the off-airport APE: In August–September 2019, each government agency or organization was contacted by mail or email; if no response was received, they were then contacted by phone. A contact list is provided in Appendix E.
- Properties previously identified in the 2005 OMP EIS: Information on historic sites collected in 2005 was reviewed and then updated based on any new findings from background research and responses from outreach including information that some properties in the 2005 EIS are now nonextant and the identification of additional locally significant properties.

During the scoping outreach for the environmental assessment, the public will be provided the opportunity to put forth for consideration by the FAA any additional historic properties or locally important historic sites.

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<sup>57</sup> The Certified Local Government Program is a provision of 36 CFR Part 61 – Procedures for State, Tribal and Local Government Historic Preservation Programs. “The Certified Local Government (CLG) program is the official preservation partnership connecting local, state, and Federal governments to help communities save their irreplaceable historic resources. Through the certification process, communities make a local commitment to historic preservation.” “What We Do,” *National Park Service: State, Tribal, and Local Plans and Grants Division*, February 1, 2019, <https://www.nps.gov/orgs/1623/whatwedo.htm>.

<sup>58</sup> “HARGIS,” *Illinois Department of Natural Resources Historic Preservation Division*, n.d., <https://www2.illinois.gov/dnrhistoric/Preserve/Pages/HARGIS.aspx>.

<sup>59</sup> “Chicago Historic Resources Survey,” *City of Chicago / Chicago Landmarks*, n.d., <https://webapps1.chicago.gov/landmarkswb/web/historicsurvey.htm>.

## Section 4

### Identifying Historic Properties

This process of identification through literature and database search and reports by local contacts resulted in a list of off-airport individual properties and historic districts as listed in Appendix F.<sup>60</sup>

Properties that are listed or eligible for the National Register include the following and are also noted in Appendix F.

**Table 2. Off-airport listed or eligible properties within the APE**

<b>Property</b>	<b>Address</b>	<b>National Register status</b>
Churchville Schoolhouse	3N784 Church Road	Listed
Green Street School	119 E. Green Street	Eligible
Wingert House	6231 N. Canfield Avenue	Listed
Passionist Fathers Monastery	5700 N. Harlem Avenue	Listed
Noble-Seymour-Crippen House	5624 N. Newark Avenue	Listed
Chicago & North Western Railroad Depot	6089 N. Northwest Highway	Listed
Norwood Park Historic District	Bordered by Avondale Ave to the north, Nagle Ave to the east, Bryn Mawr to the south, and Harlem Ave to the west	Listed
Bridge over JFK Expressway (I-90) carrying Canfield Avenue	5743 N. Canfield Avenue	Eligible
Pickwick Theater Building	5 S. Prospect Avenue	Listed

The remaining locally important sites in Appendix F have not been evaluated to determine their eligibility for listing in the National Register.

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<sup>60</sup> The extant status of identified off-airport historic properties and locally important sites will be confirmed if a potential effect is identified.



**Section 5**  
**Next Steps****5. Next Steps****A. On-airport historic properties**

The effect of proposed project activities on the National Register-eligible Rotunda, CDA Tower, and Terminal 1 will be considered per Section 106. Efforts will be made to avoid or minimize adverse effects to these historic properties.

**B. Off-airport historic properties**

Locally important off-airport sites in Appendix F (not already listed or determined eligible for the National Register) are currently being assumed as eligible for analysis purposes under Section 106. If any effects to locally important sites are identified as the project develops, they would be evaluated for potential eligibility to determine if further consideration under Section 106 is required. This approach to Section 106 compliance is provided for under the regulations at 36 CFR 800.8, which allows for the identification of historic properties and assessment of the effects to reflect “the agency official's consideration of project alternatives in the [National Environmental Policy Act] NEPA process and the effort is commensurate with the assessment of other environmental factors.”<sup>61</sup> Should any effects to off-airport historic properties (listed in or determined eligible for the National Register) be identified, efforts will also be made to avoid or minimize adverse effects under Section 106.

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<sup>61</sup> “36 CFR Part 800 - Protection of Historic Properties,” Section 800.8, page 98.

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**Appendix A.      Scoping Package: Descriptions of Proposed Projects,  
Chicago O'Hare International Airport Draft Terminal  
Area Plan Environmental Assessment**

# SCOPING PACKAGE

## Descriptions of Proposed Projects

The 35 projects comprising the Environmental Assessment's (EA) Proposed Action are listed in Table 1 (page 8). They are organized into five (5) groupings. The number of projects in each grouping and its associated subsection number are in the list below.

1. Terminal Projects (18; **Section 1.1**)
2. On-Airport Hotels (2; **Section 1.2**)
3. Airfield and Taxiway Improvements Not Required by the Terminal Projects (6; **Section 1.3**)
4. Support Facilities Not Required by the Terminal Projects (9; **Section 1.4**)
5. Air Traffic Actions for Offset Approach Procedures for Runway 10R/28L (**Section 1.5**)

Project numbers generated by the City of Chicago's Department of Aviation (CDA) appear in the section titles in brackets, e.g., "[CDA Project #1]".

Table 1 lists the areas for the project, as applicable. The table also lists abbreviated names for the projects as referred to in this scoping document if they differ from the more formal project names. The projects not associated with the air traffic actions are depicted in Figures 1 through 9 following the table. The air traffic actions and existing conditions are depicted in Figures 10 through 15. For cross-referencing purposes, Table 1 lists the figure number in which the project is depicted. CDA project numbers are also listed in Table 1.

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### 1.1 Terminal Projects

The following 10 subsections briefly describe the 18 projects in the Terminal Projects group.

#### 1.1.1 [CDA project #1] O'Hare Global Terminal and Concourse and Associated Apron Pavement

The O'Hare Global Terminal and Associated Apron Pavement project would replace existing Terminal 2, including Concourses E and F, with a new terminal building and attached concourse that would integrate with existing Terminal 1 and Concourse B to the west and the Rotunda to the east. The O'Hare Global Terminal and Associated Apron Pavement project would support a full range of terminal functions, including 14 to 20 aircraft gates, passenger holdrooms, check-in facilities, security screening, baggage claim and handling systems, baggage make-up areas, a Federal Inspection Station, various passenger amenities, and circulation space.

The O'Hare Global Terminal and Associated Apron Pavement project would also expand the existing Terminal 2 Airport Transit System station by providing an additional platform north of the existing Airport Transit System track and guideway. The existing pedestrian bridge connecting the Terminal 2 Airport Transit System station to the existing Terminal 2 would be replaced with a larger pedestrian bridge that would connect the expanded Airport Transit System station to the proposed O'Hare Global Terminal.

### **1.1.2 [CDA project #2] Satellite 1 Concourse and Associated Apron and Taxiway Pavement**

The Satellite 1 project would replace sections of several taxiways with a new concourse building that would connect to the existing south end of Terminal 1 Concourse C. The Satellite 1 project would support a range of airside terminal functions, including 13 to 22 aircraft gates, passenger holdrooms, baggage handling systems and make-up areas, various passenger amenities, and circulation space.

### **1.1.3 [CDA project #3] Satellite 2 Concourse and Associated Apron Pavement**

The Satellite 2 project would replace sections of several taxiways with a new concourse building. The Satellite 2 project would support a range of airside terminal functions, including 24 aircraft gates, passenger holdrooms, baggage handling systems and make-up areas, various passenger amenities, and circulation space.

### **1.1.4 [CDA project #4] Terminal 1 Concourse B Northeast End Expansion**

The Concourse B Expansion project would replace an existing surface parking lot with a terminal building expansion integrating with existing Terminal 1 and Concourse B. The Concourse B Expansion would support a range of terminal functions, including check-in facilities, security screening, airline office space, various passenger amenities, and circulation space.

### **1.1.5 [CDA project #5] Terminal 3 Concourse L Stinger One-Gate Addition and Associated Apron Expansion**

The Concourse L Stinger One-Gate Addition project would replace the AT&T Building with a new concourse addition accommodating one additional aircraft gate.

### **1.1.6 [CDA project #6] Consolidated Baggage, Pedestrian/Moving Walkway, and Utility Tunnel**

The Consolidated Tunnel project would connect the proposed O'Hare Global Terminal, Satellite 1, and Satellite 2 with a tunnel beneath the associated apron.

The Consolidated Tunnel would include rights-of-way for baggage handling systems, utility corridors, motorized vehicle rights-of-way, and circulation space for conveying passengers, utilities, and baggage between the proposed O'Hare Global Terminal, Satellite 1, and Satellite 2.

### **1.1.7 [CDA projects #7, #8, #9, #26] Terminal 5-related Projects**

These four (4) projects related to Terminal 5 are the following:

- [CDA project #7] Curbside Addition and Interior Reconfiguration would renovate and expand the existing Terminal 5.
- [CDA project #8] Roadway Improvements would reconfigure the existing Terminal 5 access roadway network to increase roadway capacity, replacing existing roadways and demolishing certain areas. It would also enhance the existing access roadway network, including a viaduct to Interstate 190.
- [CDA project #9] Curbside Expansion would increase capacity of the existing upper and lower level curbsides, supplementing the existing curbsides with pavement restriping, additional lanes, and enlarged sidewalks.

- [CDA project #26] Parking Garage Phase 2 would provide for a 1,400-space<sup>62</sup> 7-level elevated parking structure, extending west from the future Phase 1 parking garage (not part of this EA).

#### **1.1.8 [CDA projects #16, #17, #29, #30, #31] Taxiway Replacements**

These five (5) projects are the following:

- [CDA project #16] Taxiways K and L Extension would replace sections of five (5) existing taxiways with new taxiway pavement, providing parallel Airplane Design Group VI/Taxiway Design Group 7 taxiways.
- [CDA project #17] Taxiways North of Satellite 2 would replace sections of four (4) existing taxiways and the Penalty Box Hold Pad with new taxiway pavement, providing parallel Airplane Design Group V/ Taxiway Design Group 6 taxiways.
- [CDA project #29] Taxiways A and B Reconfiguration would replace sections of two (2) existing taxiways with new taxiway pavement, increasing centerline separation to provide parallel Airplane Design Group V/ Taxiway Design Group 6 taxiways.
- [CDA project #30] Taxiway G would replace sections of existing Taxiway H with new taxiway pavement, increasing centerline separation from Runway 9R/27L to 400 feet (becomes Taxiway G).
- [CDA project #31] Taxiways H and J would replace sections of five (5) existing taxiways with new taxiway pavement, providing parallel Airplane Design Group VI/ Taxiway Design Group 7 taxiways.

#### **1.1.9 [CDA project #33] Terminal 1 Concourse C Expansion (North)**

The Concourse C North project would integrate with existing Terminal 1 Concourse C and provide space for an airline lounge area, holdrooms, commercial space, and MEP systems. The Concourse C North project would enhance passenger level of service by providing a range of airside terminal functions, including 20 aircraft gates, passenger holdrooms, various passenger amenities, and circulation space.

#### **1.1.10 [CDA projects #T1 and #T2] Temporary Projects**

These two (2) projects are described below.

The proposed Temporary Walkway/Extended Jetway from Concourse C project [CDA project #T1] would relocate Terminal 1 Concourse C gates to enable construction of proposed Satellite 1 (**Section 1.1.2**) and provide an enclosed temporary walkway during proposed Satellite 1 construction. The Temporary Extended Jetway would be removed after completion of proposed Satellite 1.

The proposed Temporary Heating and Refrigeration Facility [CDA project #T2] would support the proposed O'Hare Global Terminal, Satellite 1, and Satellite 2 and include administrative and support spaces and an accompanying landside surface parking lot with construction of a temporary facility at one of the entrances to the proposed Consolidated Tunnel (**Section 1.1.6**). The Temporary Heating and Refrigeration Facility would be removed after completion of the proposed West Heating and Refrigeration Facility (**Section 1.4.1**).

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<sup>62</sup> In conjunction with the proposed surface parking lot associated with the proposed Roadway Improvements



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## 1.2 On-Airport Hotels

Two (2) on-airport non-aeronautical projects are briefly described in the following two (2) subsections.

### 1.2.1 [CDA project #22] Multimodal Facility (MMF) Hotel, Mixed-Use Development, and Detention Basin Relocation

The proposed MMF Hotel and Mixed-Use Development project would include construction of a new building complex, i.e., a hotel with shell space for mixed-use development, a surface parking lot, and access road pavement, west of the 2018-completed MMF.

### 1.2.2 [CDA project #25] Terminal 5 Hotel Facility and Pedestrian Bridge

The proposed Terminal 5 Hotel project would construct a new building on the northwest section of existing public parking Lot D. There would also be a pedestrian bridge connection from the hotel to the future Terminal 5 Parking Garage.

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## 1.3 Airfield and Taxiway Improvements Not Required by the Terminal Projects

The Airfield and Taxiway Improvements group consists of six (6) projects briefly described in the following three (3) subsections. These projects are not required for construction or operation of any of the projects listed in Section 1.2 above.

### 1.3.1 [CDA project #20] Bravo Hold Pad Conversion

The proposed Bravo Hold Pad Conversion project would replace the temporary United Airlines Temporary Employee Parking Lot with a hold pad, i.e., airfield pavement for holding aircraft. The temporary employee parking area would be relocated to the proposed West Employee Parking Garage (Section 1.4.3).

### 1.3.2 [CDA project #24] Runway 28R Blast Pad Expansion

The proposed Runway 28R Blast Pad Expansion project would widen the blast pad from 150 feet to 220 feet and reduce its length from 430 feet to 400 feet.

### 1.3.3 [CDA projects #23, #32, #37, #38] Taxiway Additions, Replacement/Realignment and Removal

These four (4) projects are the following:

- [CDA project #23] Runway 9L/27R Exit Taxiways would connect Runway 9L/27R to Taxiways C and M1 with new taxiway pavement, providing two (2) Airplane Design Group V/Taxiway Design Group 6 high-speed exit taxiways.
- [CDA project #32] Taxiways P, V, and Y Reconfiguration would replace existing sections of four (4) taxiways to accommodate Airplane Design Group VI operations.
- [CDA project #37] Taxiway T Demolition would eliminate approximately 35,000 square feet of taxiway pavement.
- [CDA project #38] Taxiway DD Realignment would realign the southernmost portion of Taxiway DD and easternmost portion of Taxiway Q.

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## 1.4 Support Facilities Not Required by the Terminal Projects

The Support Facilities group consists of nine (9) projects briefly described in the following nine (9) subsections. These projects are not required for construction or operation of any of the projects listed in Section 1.2 above.

### 1.4.1 [CDA project #10] West Heating and Refrigeration Facility

The West Heating and Refrigeration (H&R) Facility would increase O'Hare heating and refrigeration capacity to support the proposed O'Hare Global Terminal, Satellite 1, and Satellite 2 with construction of a proposed plant on an undeveloped site on the western side of O'Hare property. Besides the plant, the facility would also include administrative and support spaces and an accompanying landside surface parking lot.

### 1.4.2 [CDA project #11] West Employee Screening Facility

The proposed West Employee Screening Facility project would support employee security screening, circulation space, and shell space for support functions and interior expansion through a new building on an undeveloped site on the western side of O'Hare property.

### 1.4.3 [CDA project #12] West Employee Ground Transportation Facility and Parking Garage

The proposed West Employee Parking Garage project would construct an eight-level elevated parking structure with approximately 14,000 spaces on an undeveloped site on the western side of O'Hare property to replace the temporary United Airlines Parking Lot and other parking locations.

### 1.4.4 [CDA project #13] West Employee Landside Access

The proposed West Employee Landside Access project would enable roadway access to proposed facilities on the western side of O'Hare. Facilities served include the proposed West H&R Facility, West Employee Screening Facility, West Employee Parking Garage, and related support facilities (associated collateral land development). The West Employee Landside Access would provide connections between the west facilities and off-airport roadways, including York Road, future Illinois Route 390, and future Interstate 490 (O'Hare West Bypass).

### 1.4.5 [CDA project #14] West Landside Detention Basins

The proposed West Landside Detention Basins project would increase O'Hare's stormwater detention capacity by 86 acre-feet of stormwater across three (3) detention basins on undeveloped sites comprising approximately 400,000 square feet of land area on the western side of the airport property.

### 1.4.6 [CDA project #15] Airside Service Roadways

To maintain airside roadway connectivity between various proposed and existing airside facilities, e.g., the O'Hare Global Terminal, Satellite 1 and Satellite 2, the proposed Airside Service Roadways project would reconfigure the existing airside service roadway network.

#### 1.4.7 [CDA project #19] Aircraft Rescue and Firefighting Station 4 Relocation

The proposed Aircraft Rescue and Firefighting (ARFF) Station 4 Relocation project would construct a new building and associated pavement across Taxiway Z from the future United Airlines Ground Equipment Maintenance Building (the latter is not part of the EA). The ARFF Station 4 Relocation project would provide a garage building with administrative and support spaces, airside pavement, and an accompanying landside surface parking lot.

#### 1.4.8 [CDA project #21] Commercial Vehicle Holding Area Expansion

The proposed Commercial Vehicle Holding Area (CVHA) Expansion project would reconfigure the existing CVHA to increase holding area capacity.

#### 1.4.9 [CDA project #35] Centralized Distribution and Receiving Facility (CDRF)

The Centralized Distribution and Receiving Facility (CDRF) project would support goods delivery and recyclables removal, while consolidating deliveries away from the terminal area, enhancing security and reducing traffic congestion in the terminal area, via a new building on an undeveloped site in the western area of airport property.

### 1.5 Air Traffic Actions for Offset Approach Procedures for Runway 10R/28L

The proposed air traffic actions include retaining the existing 2.5-degree offset (angled) approaches to Runways 10R and 28L. With only 3,100 feet between Runway 10R/28L and its adjacent parallel runway (Runway 10C/28C), the final approach courses to Runways 10R and 28L must be offset from their extended centerline to allow independent simultaneous approaches to Runways 10R and 10C, or to Runways 28L and 28C.

Figures 10 and 11 show examples of the offset approaches for Existing Conditions during east or west flow, respectively. See sidebar for definitions of terms. The ground track for the downwind segment and the ground track for the final segment are south of what their corresponding locations would be if an offset procedure were not in place. The offset approach procedures currently allow for simultaneous approaches to three runways in east or west flows, with one of the three runways being Runway 10R/28L. For example, in east flow, the offset approach procedures allow for simultaneous approaches to Runways 10R, 10C, 9L. In west flow, offset approach procedures allow for simultaneous approaches to Runways 28L, 28C, and 27R.

These offset final approach paths to Runway 10R/28L were temporarily approved in October 2015 in the Written Re-Evaluation of the O'Hare Modernization Environmental Impact Statement. The 2015 Written Re-Evaluation temporarily approved the offset approach paths to increase separation between aircraft on parallel approaches

#### Key Terms

Two "flow" states are considered for O'Hare: *east* flow, when winds are from the east, and *west* flow, when winds are from the west.

Portions of a pilot's approach to an airport are described in segments, as labeled in the figures. The *downwind* segment is where the aircraft is flying with the wind away from the airport. The *final* leg is where the aircraft is flying into the wind towards the airport.

For O'Hare, the point where the aircraft aligns with the runway is nearly two miles from the runway's threshold and is called the *final approach fix*.

involving Runway 10R/28L. This authorization was in accordance with FAA safety guidance when the new runway was commissioned in October 2015.

Figures 12 and 13 show the approaches for the No Action Alternative, for east and west flows, respectively. The 2015 Written Re-Evaluation assumed the offset approaches would expire when Build Out of the O'Hare Modernization occurred, i.e., when the extension of Runway 9R/27L is fully operational. Consequently, the Interim and Build Out conditions of the No Action Alternative of this EA do not include the offset approaches and the associated offset downwind approach procedures, relying instead on approaches aligned with the extended runway centerline.

Simultaneous approaches to three runways in east or west flows, with one of the three runways being Runway 10R/28L, would be feasible but with a lesser degree of efficiency and capability inherent in dependent (as opposed to independent), simultaneous approaches to parallel runways.

Figure 14 and 15 show an example of approaches for the "With Project" Alternative, for east and west flows, respectively. Retaining the offset approach procedures would also enable for the future use of simultaneous, independent approaches to four runways (quadruple approaches) during east or west flows, with one of the four runways being Runway 10R/28L. For example, in east flow, aircraft could simultaneously approach Runways 10R, 10C, 9C and 9L. In west flow, aircraft could simultaneously approach Runways 28L, 28C, 27C and 27R. Quadruple approaches were previously assessed at O'Hare in the 2005 O'Hare Modernization Environmental Impact Statement. Retention of the currently charted but temporary offset approaches would preserve a future ability to operate quadruple approaches. Quadruple approaches have not yet been necessary since operations have not grown to a level to warrant their use; however, sufficient numbers of operations are expected by the Build Out timeframe in this EA to require their use to avoid aircraft delays.

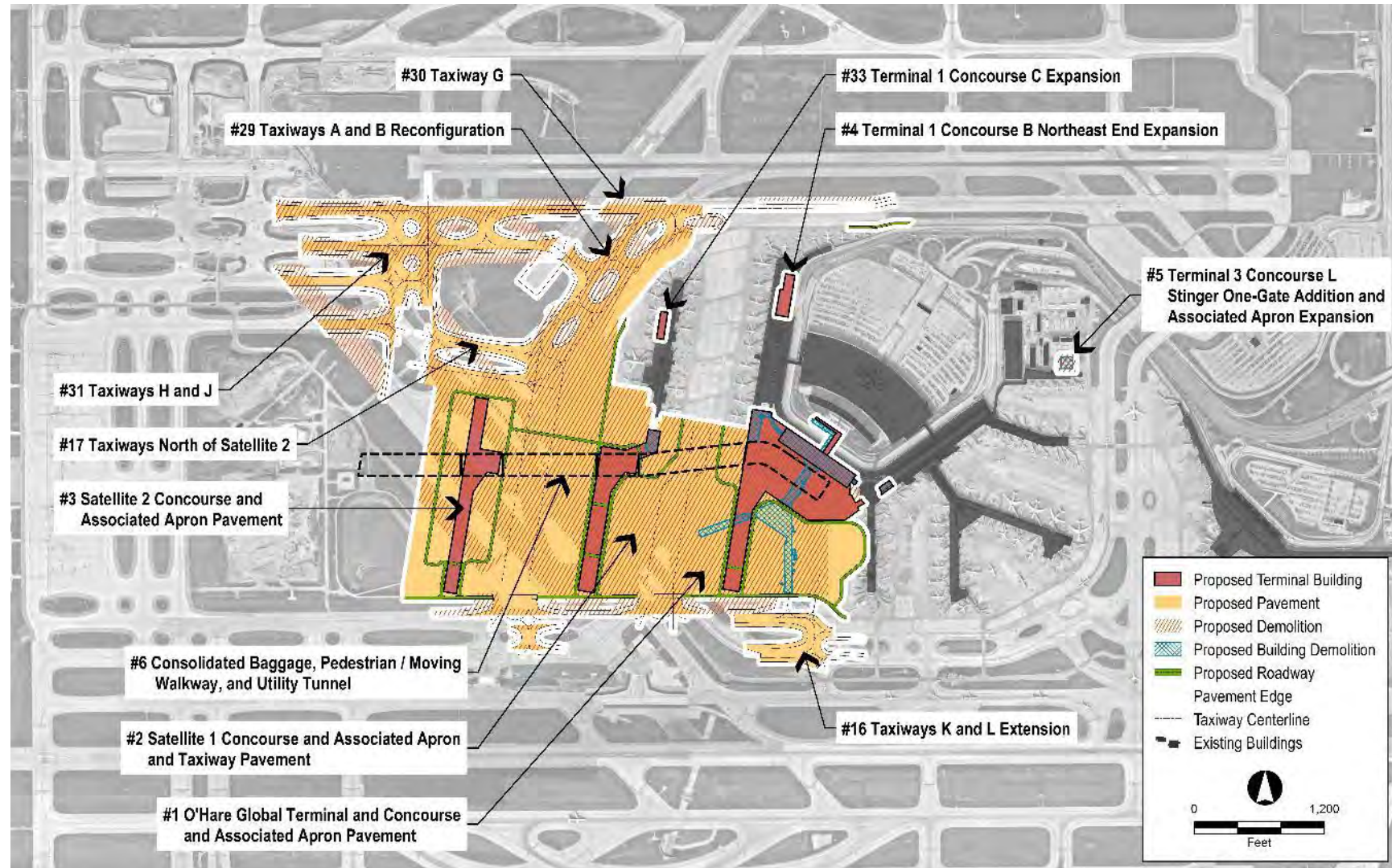
To maintain efficient aircraft movement in the vicinity of O'Hare and to provide flexibility, the FAA proposes to retain the offset final approaches and associated offset downwind approach procedures, as analyzed in the Interim and Build Out conditions of the With Project Alternative of this EA.

**Table 1**  
**PROPOSED TAP PROJECTS**

EA Project Grouping	[CDA Project Number] and Figure Number	Project Name (full)	Proposed Resultant Footprint Area (sq ft unless otherwise specified)
<b>Terminal Projects</b>	[1] 1	O'Hare Global Terminal and Concourse and Associated Apron Pavement	2.2 million
	[2] 1	Satellite 1 Concourse and Associated Apron and Taxiway Pavement	700,000
	[3] 1	Satellite 2 Concourse and Associated Apron Pavement	530,000
	[4] 1	Terminal 1 Concourse B Northeast End Expansion	41,000
	[5] 1	Terminal 3 Concourse L Stinger One-Gate Addition and Associated Apron Expansion	34,000
	[6] 1	Consolidated Baggage, Pedestrian/Moving Walkway, and Utility Tunnel	N/A
	[7] 3	Terminal 5 Curbside Addition and Interior Reconfiguration	63,000
	[8] 3	Terminal 5 Roadway Improvements	195,000 sq ft new roadway
	[9] 3	Terminal 5 Curbside Expansion	100,000 sq ft new roadway; 76,000 reconfigured roadway
	[26] 3	Terminal 5 Parking Garage - Phase 2	55,000
	[16] 1	Taxiways K and L Extension (Between Taxiway A11 and Taxiway A13)	260,000 sq ft new taxiway
	[17] 1	Taxiways North of Satellite 2 (Between Relocated Taxiways A and B and Penalty Box Hold Pad)	620,000 sq ft new taxiway
	[29] 1	Taxiways A and B Reconfiguration (Between Penalty Box Hold Pad and Taxiway G)	780,000 sq ft of new taxiway
	[30] 1	Taxiway G (Existing Taxiway H; Between Future Taxiway T and Taxiway A1)	700,000 sq ft of new taxiway
	[31] 1	Taxiways H and J (South of Runway 9R Extension from Taxiway SS to Runway 4L/22R)	750,000 sq ft of new taxiway
	[33] 1	Terminal 1 Concourse C Expansion (North)	32,000
	[T1] 2	Temporary Walkway/Extended Jetway from Concourse C (With 6 Gates)	20,000
	[T2] 2	Temporary Heating and Refrigeration Facility (Near Satellite 2)	64,000
<b>On-airport Non-aeronautical Projects</b>	[22] 4	Multimodal Facility (MMF) Hotel, Mixed-Use Development, and Detention Basin Relocation	170,000
	[25] 4	Terminal 5 Hotel Facility and Pedestrian Bridge	175,000

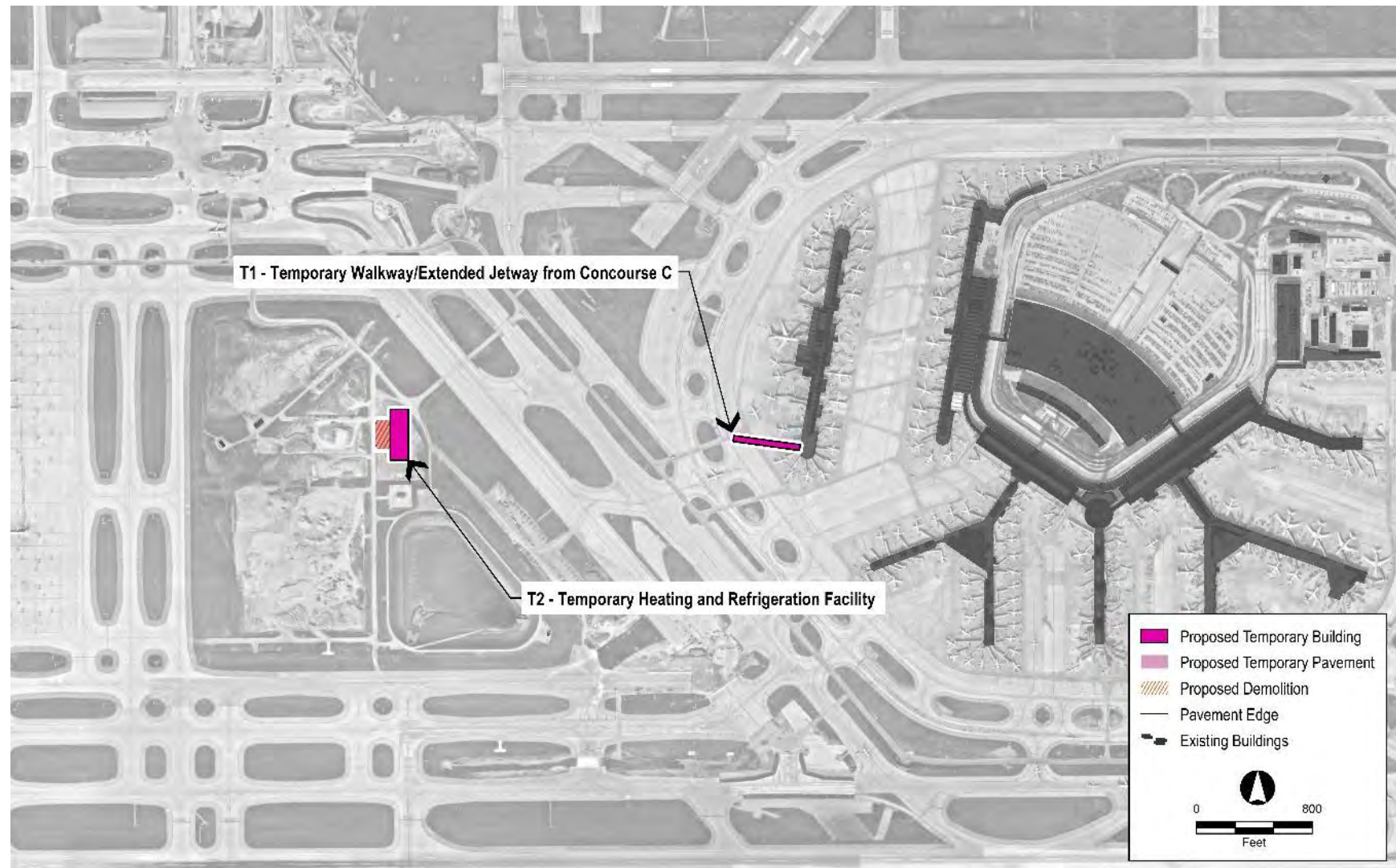
<b>EA Project Grouping</b>	<b>[CDA Project Number] and Figure Number</b>	<b>Project Name (full)</b>	<b>Proposed Resultant Footprint Area (sq ft unless otherwise specified)</b>
<b>Airfield and Taxiway Improvements</b>	[20] 5	Bravo Hold Pad Conversion	890,000 sq ft of pavement
	[23] 6	Runway 9L/27R Exit Taxiways	405,000 sq ft of new taxiway
	[24] 5	Runway 28R Blast Pad Expansion	58,000
	[32] 5	Taxiways P, V, and Y Reconfiguration (Between Taxiway RR and the Existing Runway 28R Hold Pad)	1.3 million sq ft of new taxiway
	[37] 5	Demolition and Removal of Temporary Taxiway T Between Taxiway P and Taxiway P6 (North of Runway 10C/28C)	removal of 35,000 sq ft of taxiway
	[38] 5	Taxiway DD Realignment at the Taxiway Q Intersection (near the South Central Cargo Apron)	replacement and realignment of 120,000 sq ft of taxiway
<b>Support Facilities</b>	[10] 9	West Heating and Refrigeration Facility	130,000
	[11] 9	West Employee Screening Facility	720,000
	[12] 9	West Employee Ground Transportation Facility and Parking Garage	740,000
	[13] 9	West Employee Landside Access	800,000 sq ft new roadway
	[14] 9	West Landside Detention Basins	9 acres land; 86 acre-ft stormwater
	[15] 7, 9	Airside Service Roadways	512,000 sq ft new roadway
	[19] 8	Aircraft Rescue and Firefighting (ARFF) Station 4 Relocation	67,000
	[21] 7	Commercial Vehicle Holding Area (CVHA) Expansion	172,000
	[35] 9	Centralized Distribution and Receiving Facility (CDRF)	280,000
<b>Air Traffic Actions</b>	N/A [10-15]	Offset Approach Procedures for Runway 10R/28L	N/A

**FIGURE 1**  
**TERMINAL PROJECTS (SET 1 OF 3) – O'HARE GLOBAL TERMINAL AND SATELLITE TERMINAL PROJECTS**



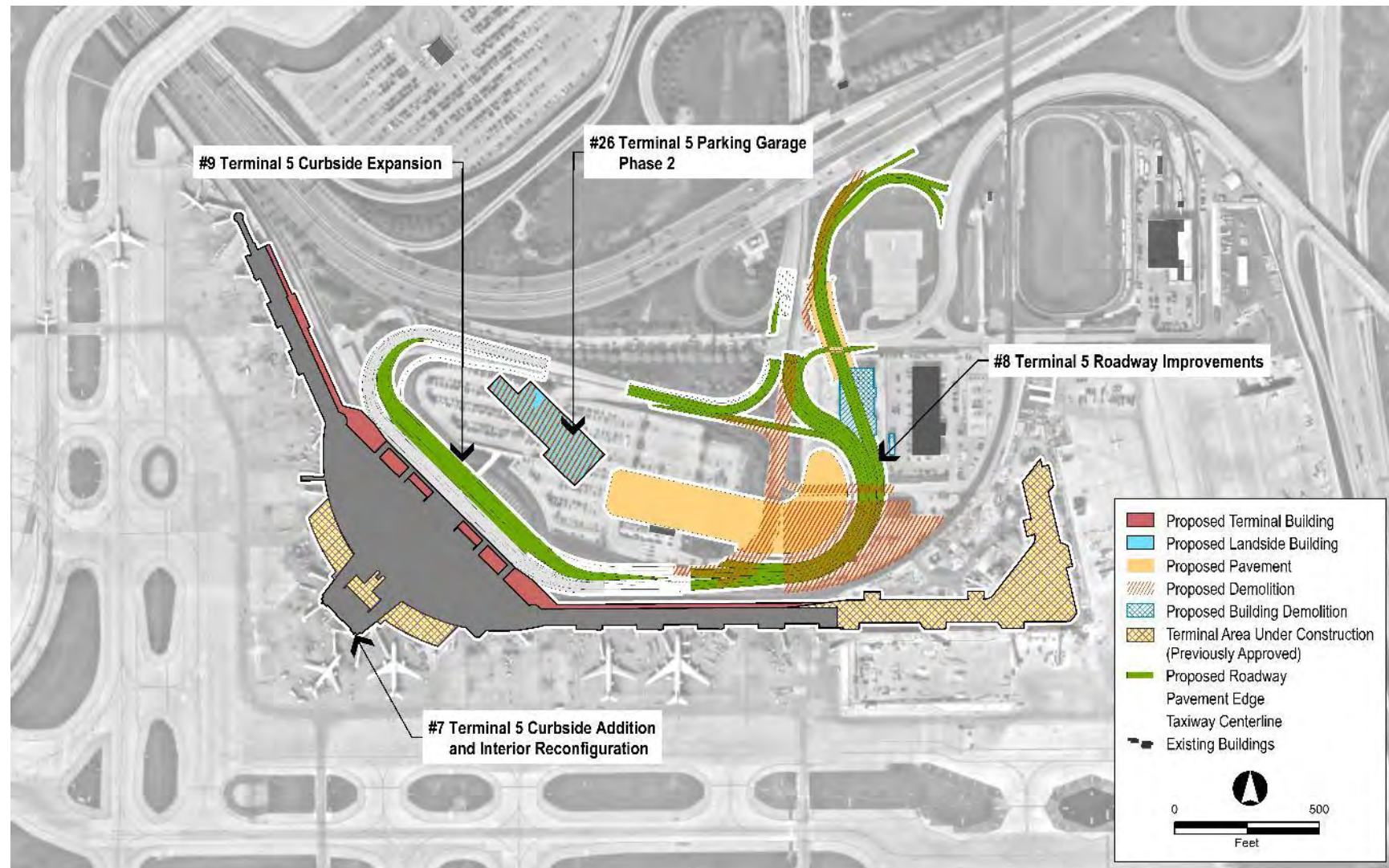


**FIGURE 2**  
**TERMINAL PROJECTS (SET 2 OF 3) – O'HARE GLOBAL TERMINAL AND SATELLITE TERMINAL TEMPORARY PROJECTS**





**FIGURE 3**  
**TERMINAL PROJECTS (SET 3 OF 3) – TERMINAL 5 PROJECTS**

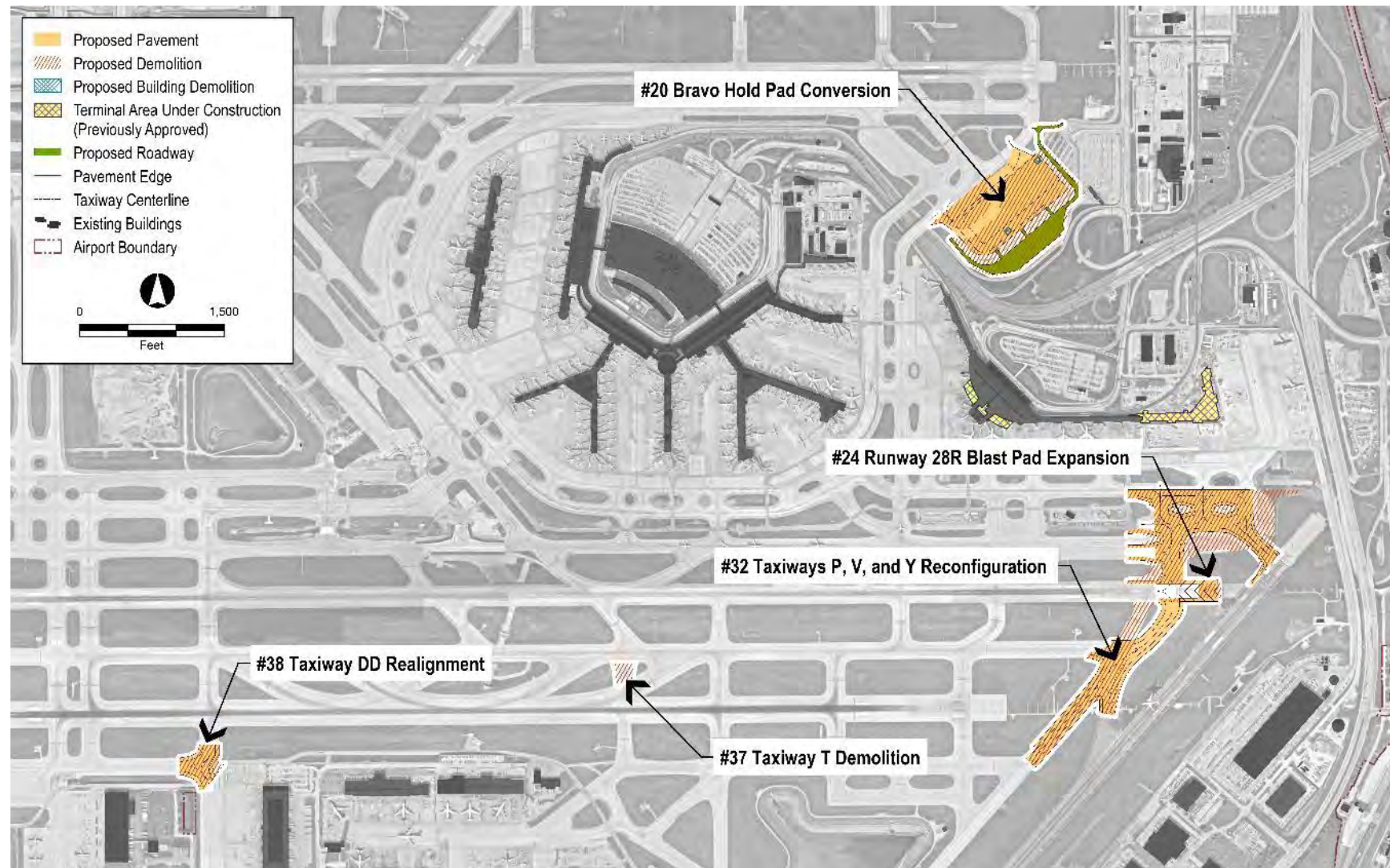


**FIGURE 4**  
**ON-AIRPORT HOTELS**

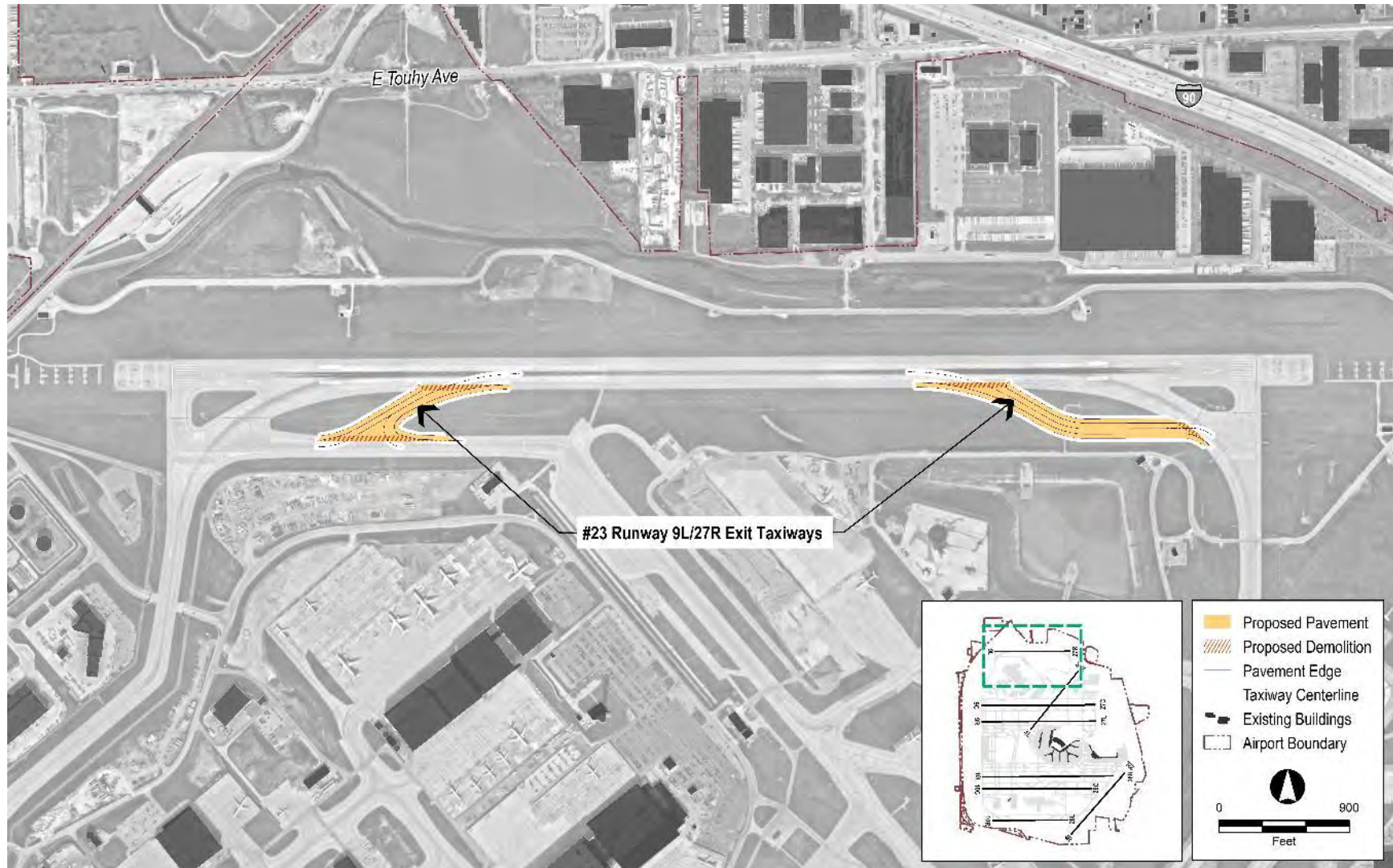




**FIGURE 5**  
**AIRFIELD AND TAXIWAY IMPROVEMENTS NOT REQUIRED BY THE TERMINAL PROJECTS (SET 1 OF 2)**

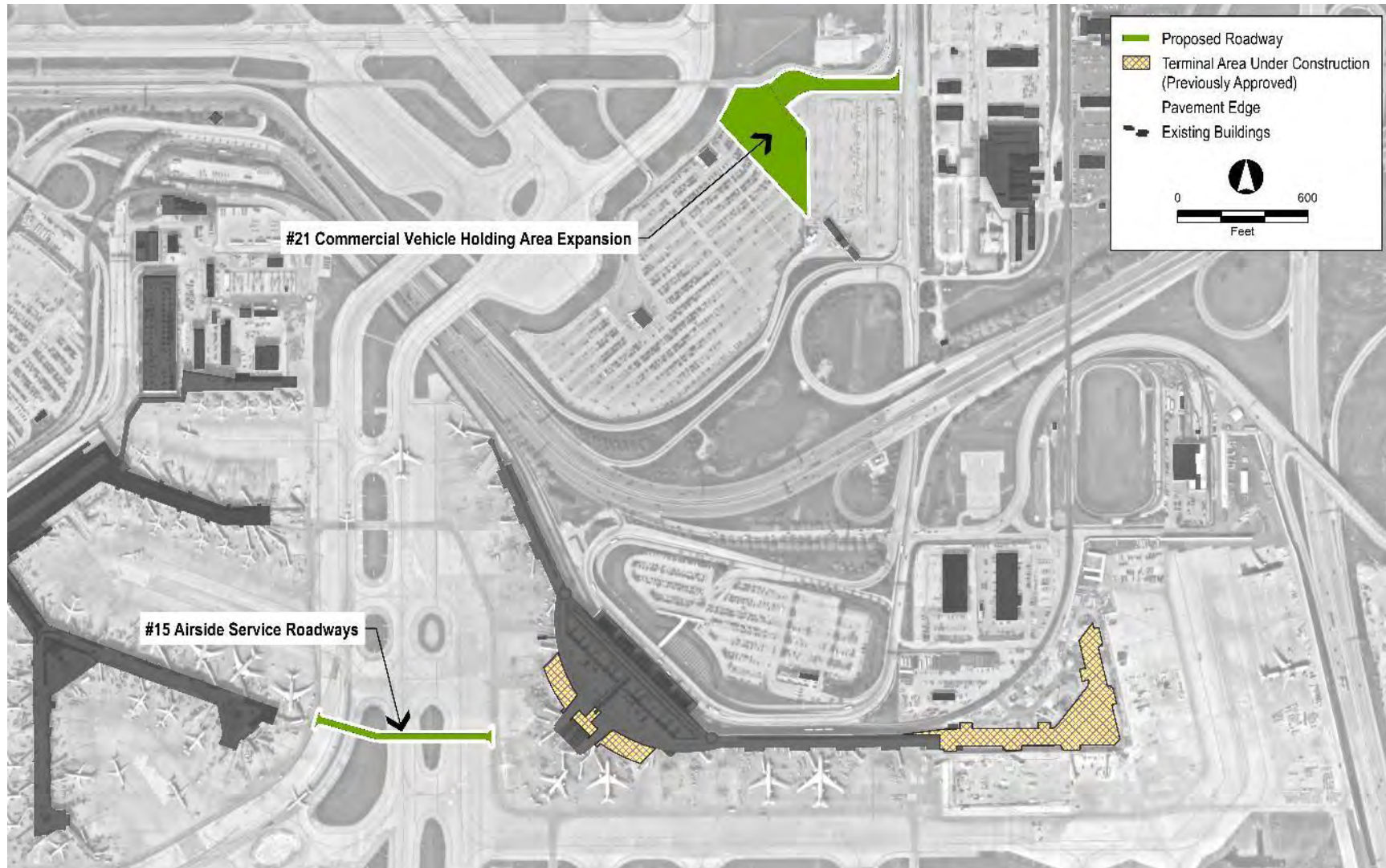


**FIGURE 6**  
**AIRFIELD AND TAXIWAY IMPROVEMENTS NOT REQUIRED BY THE TERMINAL PROJECTS (SET 2 OF 2)**

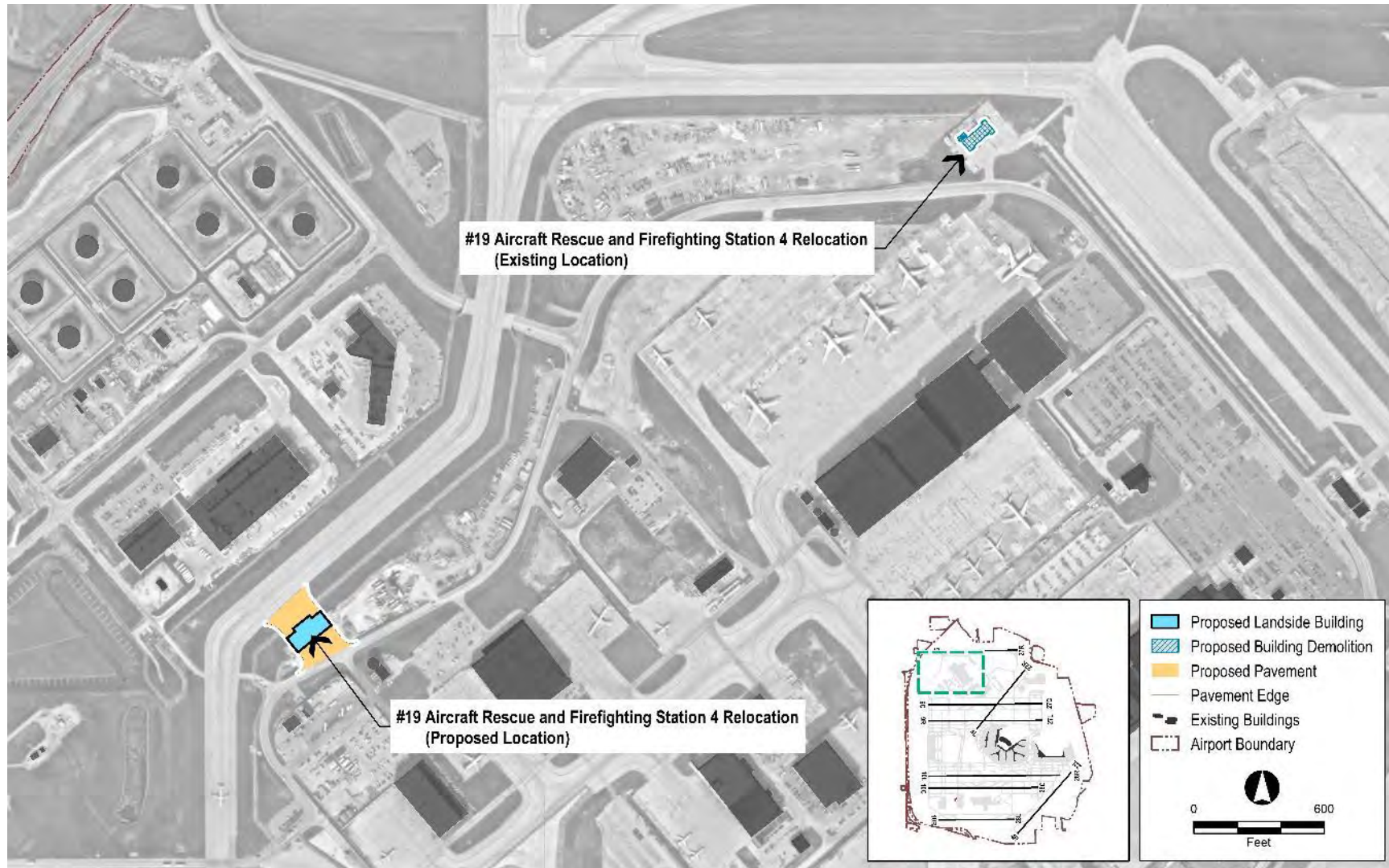




**FIGURE 7**  
**SUPPORT FACILITIES NOT REQUIRED BY THE TERMINAL PROJECTS (SET 1 OF 3)**

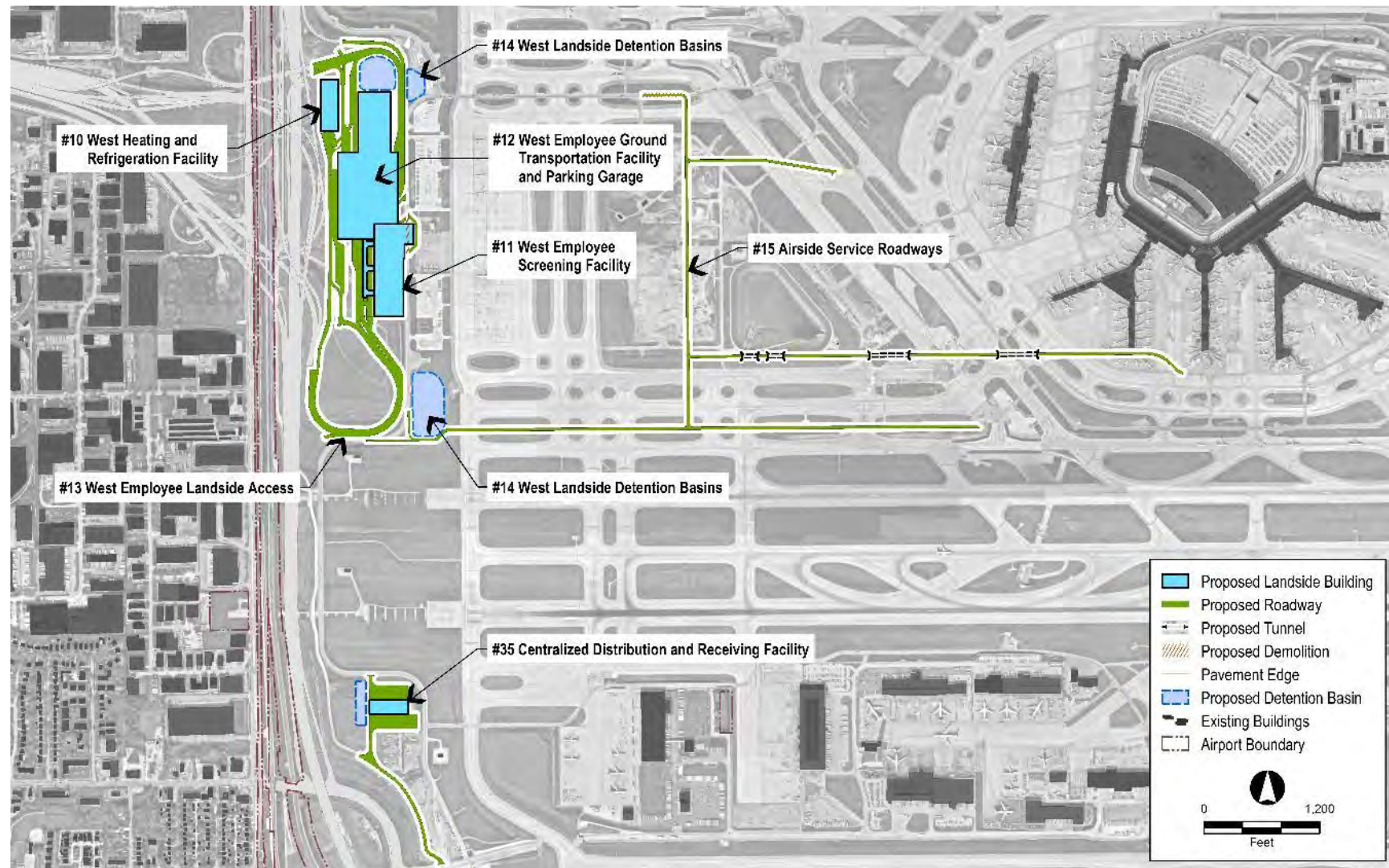


**FIGURE 8**  
**SUPPORT FACILITIES NOT REQUIRED BY THE TERMINAL PROJECTS (SET 2 OF 3)**

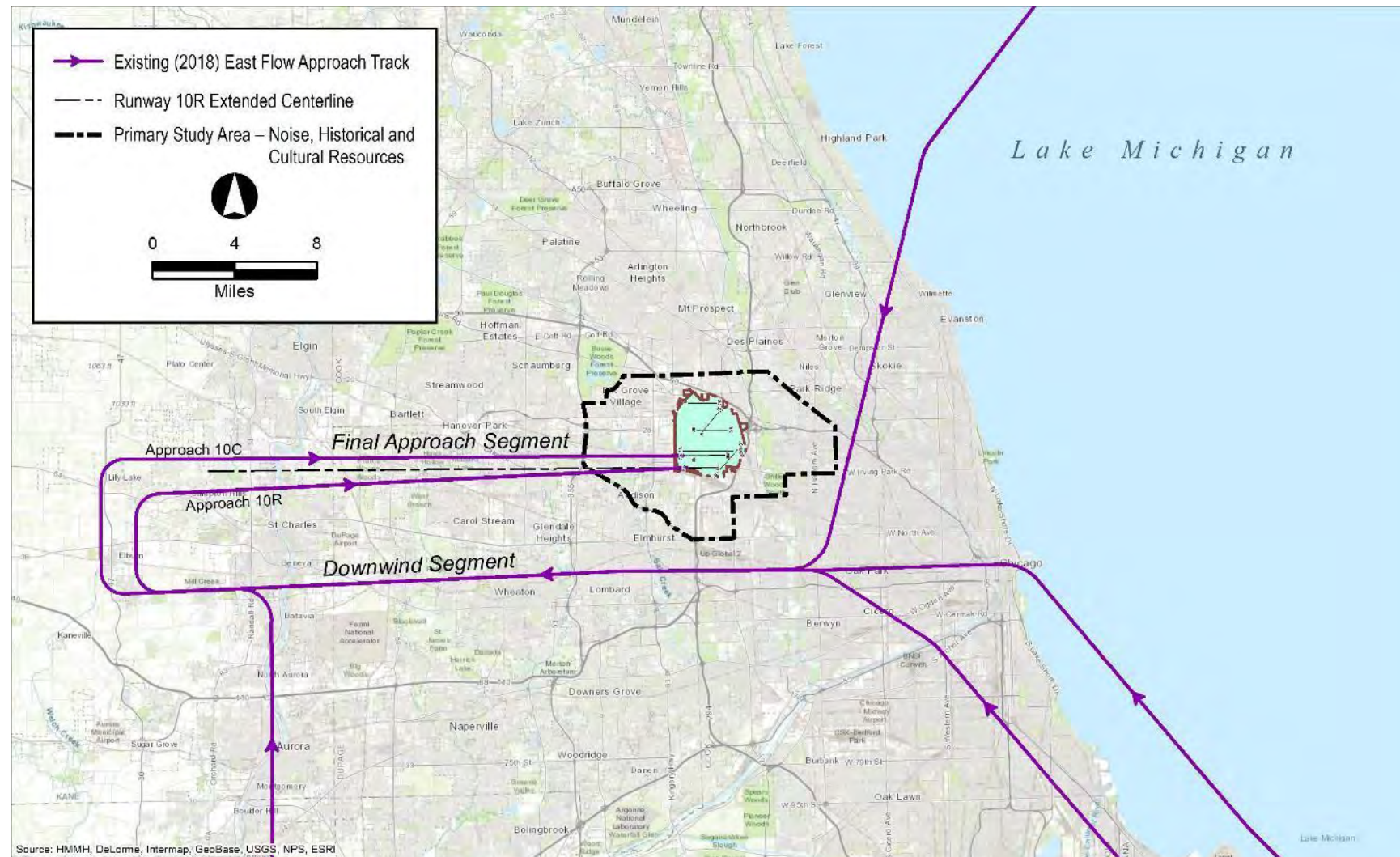




**FIGURE 9**  
**SUPPORT FACILITIES NOT REQUIRED BY THE TERMINAL PROJECTS (SET 3 OF 3)**

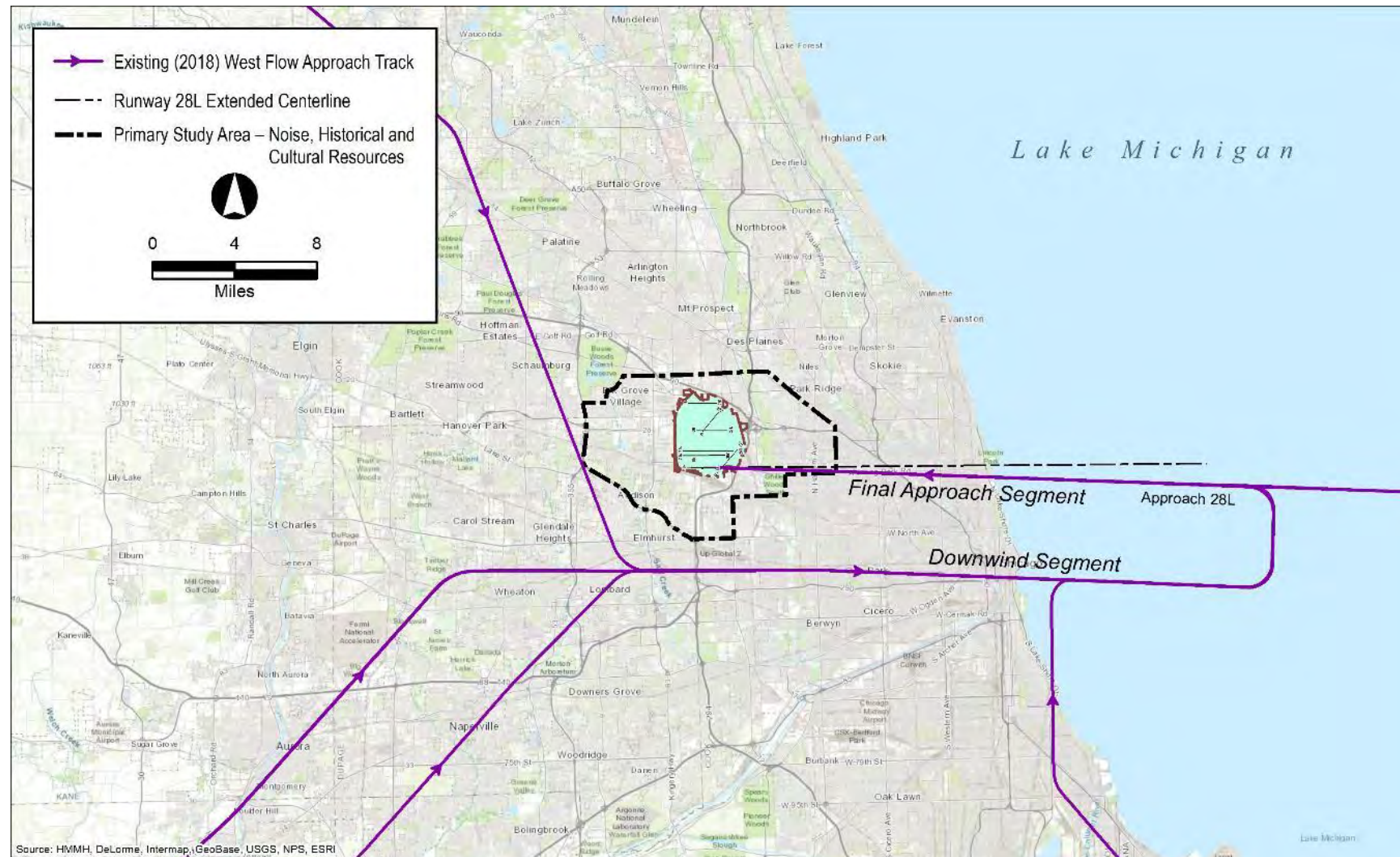


**FIGURE 10**  
**EXAMPLE OF 2.5 DEGREE OFFSET APPROACHES FOR EXISTING (2018) EAST FLOW**

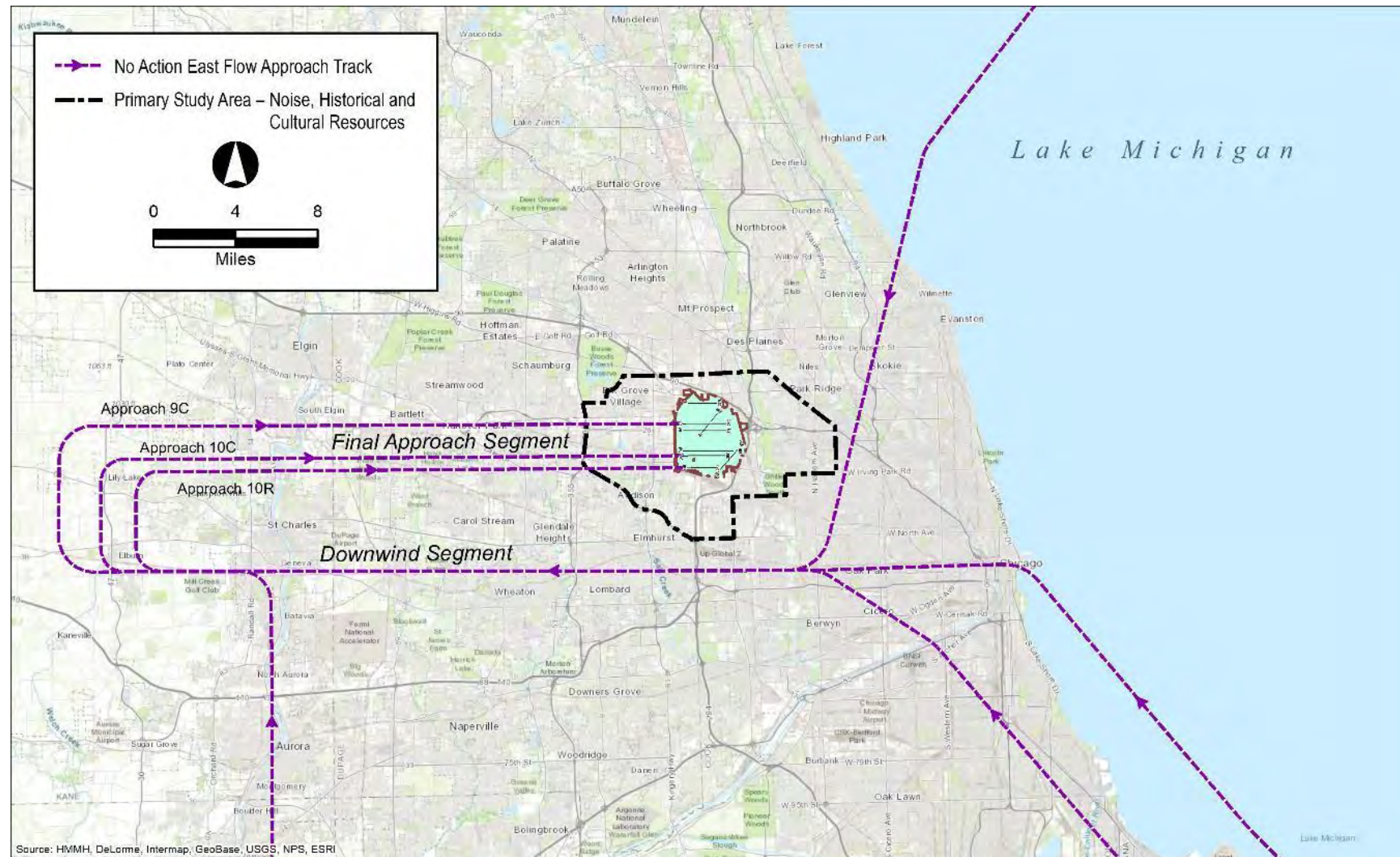




**FIGURE 11**  
**EXAMPLE OF 2.5 DEGREE OFFSET APPROACHES FOR EXISTING (2018) WEST FLOW**

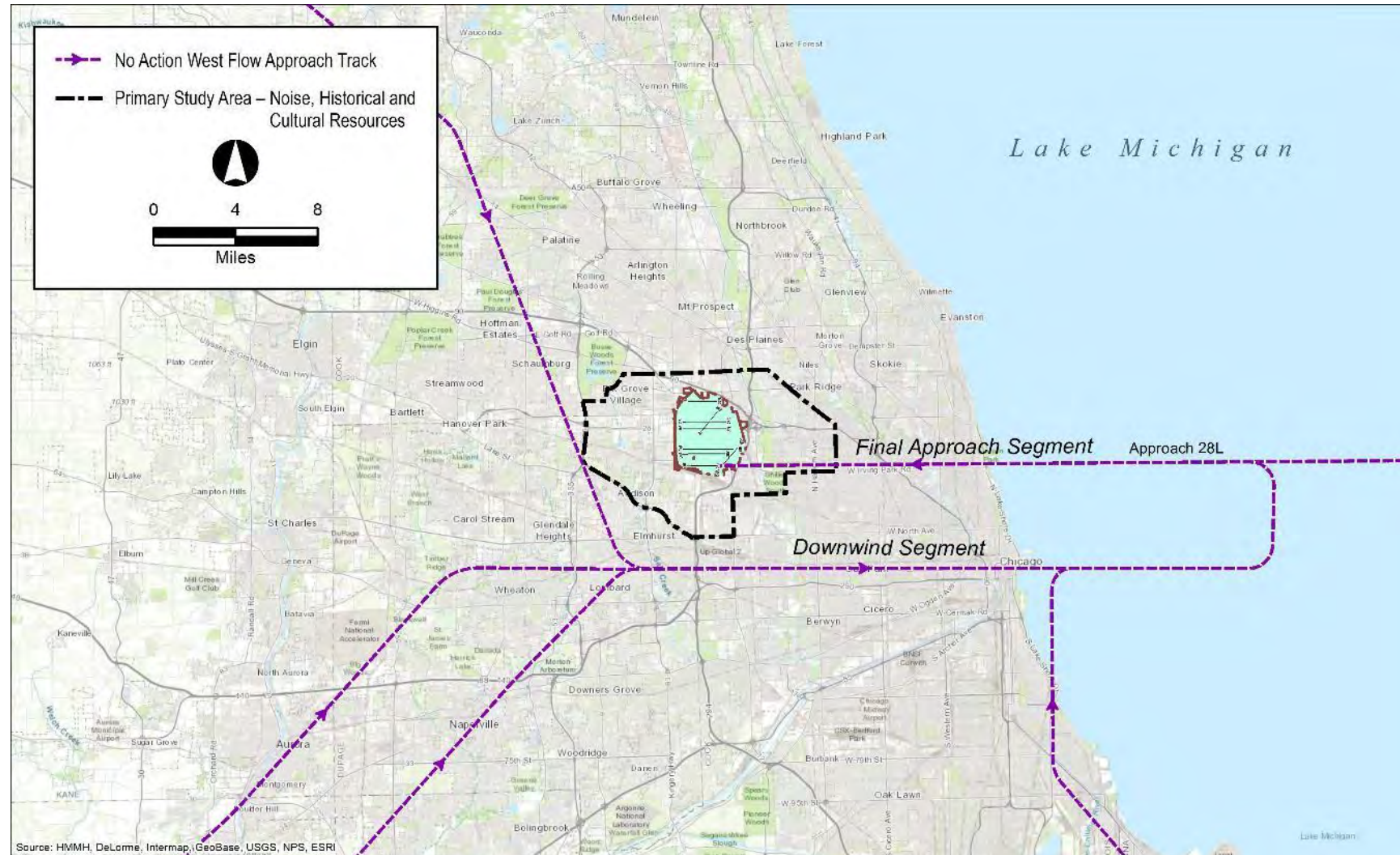


**FIGURE 12**  
**EXAMPLE OF EAST FLOW APPROACHES FOR NO ACTION**

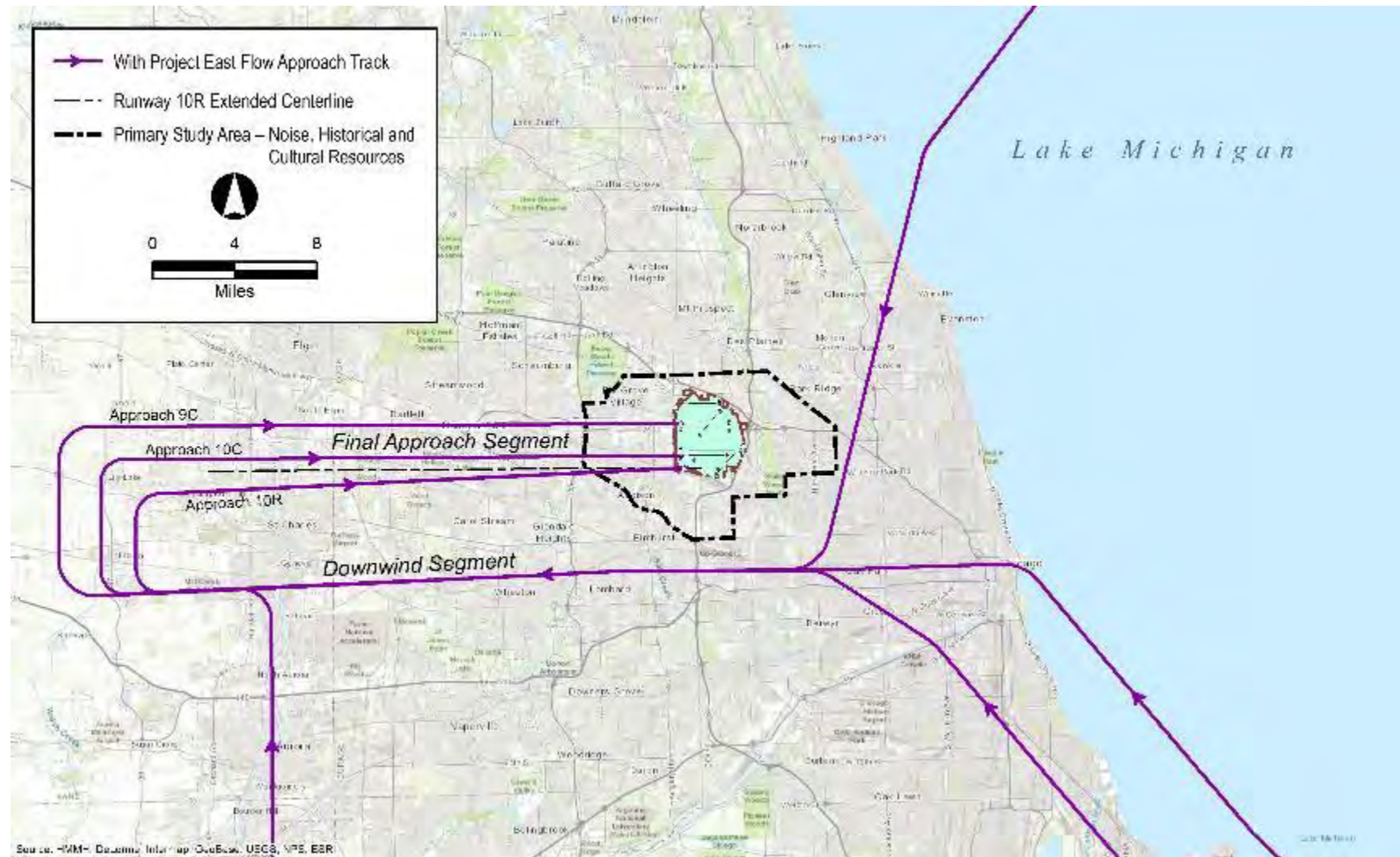




**FIGURE 13**  
**EXAMPLE OF WEST FLOW APPROACHES FOR NO ACTION**

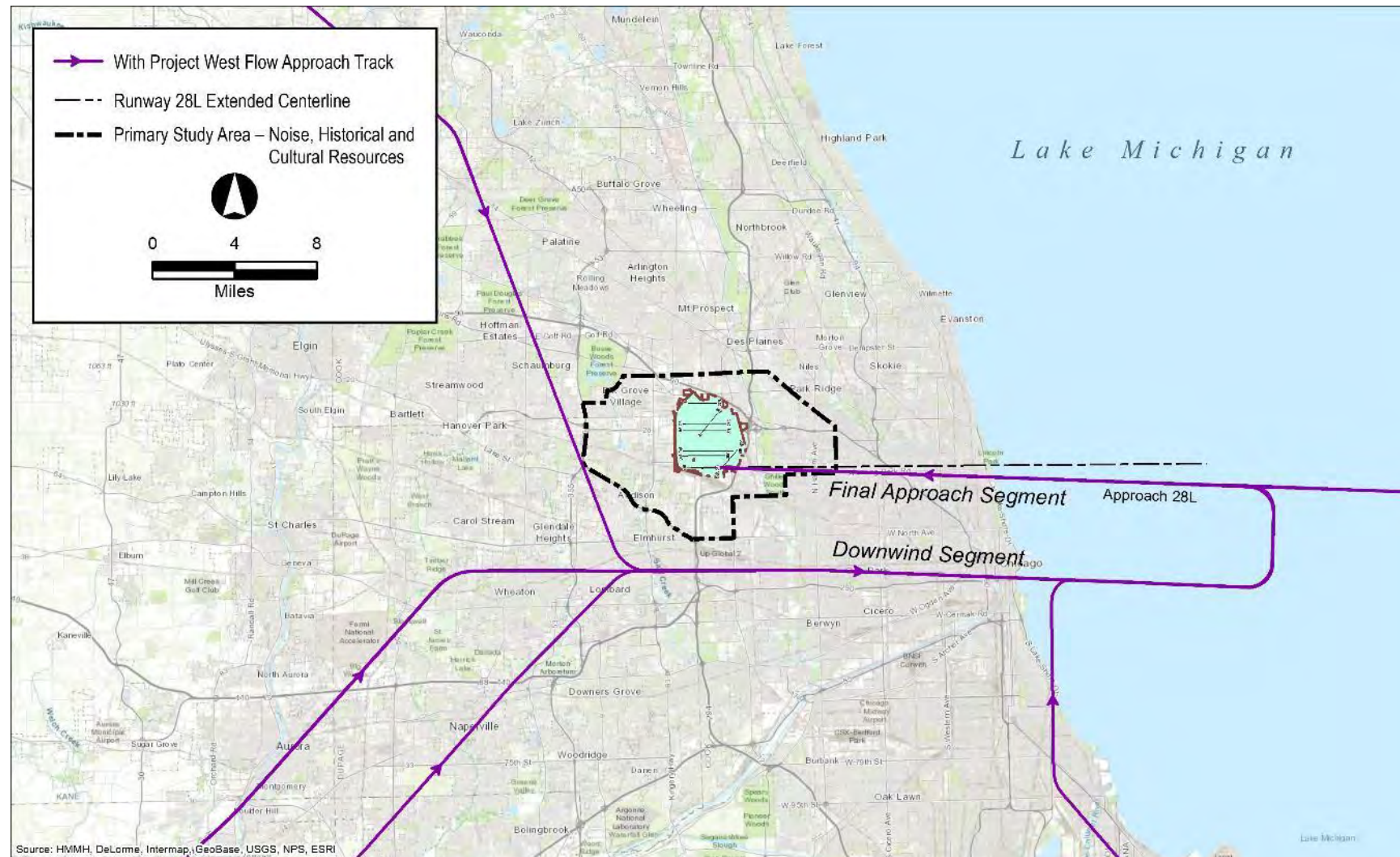


**FIGURE 14**  
**EXAMPLE OF EAST FLOW APPROACHES FOR INTERIM WITH PROJECT AND BUILD OUT WITH PROJECT**





**FIGURE 15**  
**EXAMPLE OF WEST FLOW APPROACHES FOR INTERIM WITH PROJECT AND BUILD OUT WITH PROJECT**



## **Appendix B. Excerpt of Chicago Department of Aviation General Conditions Specification**

activities will immediately cease and will not be recommenced until a new authorization is received from the City. In no event will the City be liable or responsible for any damages for delay or other claims in connection with such revocation.

11. The City reserves the right to perform Work within the ROW Envelope, at any time, and without prior notice. Work and other activities of the Contractor to be conducted near or within the ROW Envelope, which may, in the City's sole opinion, interfere with the City's Work, will be suspended, upon written notice by the Commissioner or Construction Manager, until such time as the City indicates. In no event will the City be liable or responsible for any damages for delay or other claims arising in connection with such suspension.
  12. The City reserves the right to issue new rules as may be needed, in the City's sole opinion, from time to time, in connection with Work or other activities being conducted near the ATS, or near or within the ROW Envelope, and such rules will be effective as of the date of issuance.
3. Protection of Existing Structures and Property.
- a. The Contractor must avoid damage, as a result of its operations, to trees, plant life, existing sidewalks, curbs, streets, alleys, pavements, utilities, adjoining property, the work of other contractors and the property of the City, the FAA and others and will at its own expense repair any damage thereto caused by its operations.
  - b. The Contractor must be responsible for loss or damage by fire or theft of equipment, material, or other property of the CDA or the City of Chicago, incurred while such equipment, material or other property is located in any field office or on the site of the Work. The Contractor must repair or replace any such equipment, material or other property so lost or damaged, to the satisfaction of the Commissioner, as applicable, at no additional cost to the City.
  - c. The Contractor must familiarize itself with the requirements of local and state laws applicable to underpinning, shoring and other Work affecting adjoining property and wherever required by law the Contractor will shore-up, brace, underpin, secure, and protect as may be necessary all foundations and other parts of existing structures adjacent to, adjoining and in the vicinity of the site, which may be in any way affected by the excavations or other operations connected with the Work.
  - d. The Contractor is responsible for the giving of any and all required notices to any adjacent or adjoining property owner or other party and such notice or notices must be served in sufficient time as not to delay the progress of the Work.
  - e. The Contractor must indemnify, save and keep the City harmless from any damages on account of settlements or the loss of lateral support of adjacent or adjoining property and from all loss or expense and all damages for which the City may become liable in consequence of such injury or damage to adjacent and adjoining structures and their premises.
    1. The provisions of the foregoing paragraph will include also and apply to any liabilities and duties placed upon the City of Chicago as Owner or occupant of the property on which the improvements provided for herein are to be constructed, by the provisions of an Act entitled "An Act to prescribe the duty of an owner or occupant of lands upon which excavations are made in reference to the furnishing of lateral and subjacent support to adjoining lands and structures thereon". See 765 ILCS 140/1 et seq.
4. Protection of Utilities.

- a. The Contractor must determine the locations of all utilities in the vicinity of the site of the Work and will take suitable care to protect and prevent damage to such utilities from its operations under this Contract.
  1. The O'Hare International Airport Underground Construction Notification document, also known as the "Dig Book" must be prepared and submitted a minimum of twenty-one (21) Calendar Days prior to the commencement of any excavation and/or utility work. The Contractor cannot perform any excavation or work around existing utilities without receiving a fully executed Dig Book. The Contractor must participate with the Construction Manager in the preparation of the Dig Book.
  2. Contractor must include in the Baseline, Monthly Update and Three-Week Look Ahead Schedules a predecessor milestone and task to represent the submittal and execution of the Underground Construction Notification form for each activity associated with excavation and utility work. The milestone denotes the submittal of the form to the CDA for approval. The task should denote the twenty-one (21) Calendar Day form approval period.
- b. When performing Work adjacent to existing sewers, drains, water and gas lines, electric or telephone or telegraph conduits or cables, poles lines or poles, or other utility equipment or structures, which are located outside of the neat lines of the excavations to be made or of the structures to be constructed under this Contract and which are to remain in operation, the Contractor must preserve and maintain such utility equipment, structures, and utility marking posts in place at its own expense and will co-operate with the City department, utility company or other party owning or operating such utility equipment or structures in the maintenance thereof.
- c. The Contractor is responsible for and must repair all damage to any such utility, equipment or structures caused by its acts, whether negligent or otherwise, or its omission to act, whether negligent or otherwise and will leave such utility, equipment or structures in as good condition as they were in prior to the commencement of its operations under this Contract. However, it is hereby agreed that any such utility equipment or structures damaged as a result of any act, or omission to act, of the Contractor may, at the option of the City department, utility company, or other party owning or operating such utility, equipment or structures damaged, be repaired by such City department, utility company, or other party and in such event the cost of such repairs will be borne by the Contractor.

#### 5. Protection of Streets, Alleys, and Public Grounds.

- a. If in the prosecution of the Work it is necessary to excavate, use or occupy any street, alley, or public grounds of the City, the Contractor must erect and maintain such barriers and, during the night time, such lights as will effectually prevent the happening of any accidents or damage to life, limb or property in consequence of such excavation, use or occupation of such street, alley, or public grounds.
- b. The Contractor will be liable for all damages occasioned by the excavation, use or occupation of any street, alley, or public grounds, or by the carelessness of the Contractor, its agents, employees, or workers and will indemnify the City against all judgments rendered against it by reason thereof.
- c. If the City is sued solely for such neglect, a judgment rendered against it will be conclusive evidence (1) of the negligence of the Contractor as aforesaid and (2) the amount of such damages recoverable from the Contractor by reason thereof. In the defense of such action, the Contractor, upon notice, agrees to cooperate with the City to the fullest extent in furnishing evidence bearing on the charges therein made.

#### 6. Protection of Existing Trees in the Right of Way.



## **Appendix C. On-Airport Inventory Forms**

## O'Hare On-Airport Inventory Form

Resource Name	CDA Communications Service Center / North Airfield ARFF #4		
Historic Name	Fire Station Site #2		
CDA Building No.	701	Survey Date	July 25, 2019
Recorded By	Brian Matuk	Organization	Mead & Hunt, Inc.

### 1. Location

O'Hare International Airport		
UTM Location (NAD 83, UTM Zone 16 North)	Easting: 423929	Northing: 4650264

### 2. Architectural Information

Resource Type and Use	Fire Station
Style	Modern
Construction Date	1971
Architect/Builder	Jerome R. Butler, City Architect, City of Chicago Bureau of Architecture & Building Maintenance
Current Use	Fire Station
Historic Use	Fire Station

### 3. Description

Originally constructed in 1971 as a fire station, the Chicago Department of Aviation (CDA) Communications Service Center/North Airfield Aircraft Rescue and Firefighting (ARFF) #4 building is located at the northern section of O'Hare International Airport (O'Hare) in the maintenance hangar area approximately 1.4 miles northwest of the Terminal Core Area. This building is generally one story with a mechanical basement level below grade and a penthouse level that provides access to the roof. The building is roughly H-shape in plan, with a rectilinear design that contains a relatively flat, built-up roof, with an exterior that mainly consists of aluminum-frame multi-light garage doors with transoms and grey glazed face brick. Other exterior elements include metal louver vents and large, metal-frame, plate-glass windows. The original footprint was a smaller H-shape and included an apparatus room, dining room, locker room, dormitory, officer's room, dry room, and corridors. The building footprint has increased greatly, approximately doubling in size as a result of two additions to the building's east elevation: one in 1977 and one in 1980. Both additions replicated the materials and design elements of the building's original exterior and added a second apparatus room, storage room, work room, and toilet room.

### 4. Recommendation

The CDA Communications Service Center/North Airfield ARFF #4 building<sup>63</sup> does not have potential for eligibility for listing in the National Register of Historic Places (National Register). Under National Register *Criterion A*, this building is not associated with any significant period of development history at O'Hare, given its original construction as one of four fire stations at the airport and one of two nearly identical fire stations constructed in 1971. Additionally, the fire station was constructed eight years after the completion and dedication of Terminal 2, Terminal 3, and the Rotunda associated with the 1960s airport expansion project. Under *Criterion B*, there is no specific individual associated with this building that has made a significant contribution to our history. Under *Criterion C*, this service building is an example of modern architecture; however, it does not embody distinctive characteristics of modern architecture, is not representative of a period or type, nor does it exhibit any rare or innovative construction methods or techniques. Additionally, the building is not known to be the work of any master builder or engineer. Architect Jerome Butler is not considered a master architect as his designs as the Chicago City Architect for the Public Works Department do not rise to a level that would be considered significant under National Register eligibility criteria. For these reasons, CDA Communications Service Center/North Airfield ARFF #4 building is recommended not eligible for listing in the National Register.

<sup>63</sup> The building is currently listed as North Airfield ARFF #4 but was originally constructed as Fire Station #2. It is unclear when the referenced numbering changed.

## O'Hare On-Airport Inventory Form

Resource Name	CDA Communications Service Center / North Airfield ARFF #4		
Historic Name	Fire Station Site #2		
CDA Building No.	701	Survey Date	July 25, 2019
Recorded By	Brian Matuk	Organization	Mead & Hunt, Inc.

### 5. Resource Location Map



Service Layer Credits: © OpenStreetMap (and) contributors, CC-BY-SA

**O'Hare On-Airport Inventory Form**

Resource Name	CDA Communications Service Center / North Airfield ARFF #4		
Historic Name	Fire Station Site #2		
CDA Building No.	701	Survey Date	July 25, 2019
Recorded By	Brian Matuk	Organization	Mead & Hunt, Inc.

**6. Photographs**

*Southwest and southeast elevations of the CDA Communications Service Center/North Airfield ARFF #4 building. Photo from the Chicago Department of Aviation.*



*Northeast and northwest elevations of the CDA Communications Service Center/North Airfield ARFF #4 building, showing an open garage door at one of the apparatus bays along the 1980 addition. Photo from the Chicago Department of Aviation.*

## O'Hare On-Airport Inventory Form

Resource Name	Concourse G		
Historic Name	Concourse G		
CDA Building No.	260	Survey Date	June 18, 2019
Recorded By	Brian Matuk	Organization	Mead & Hunt, Inc.

### 1. Location

O'Hare International Airport		
UTM Location (NAD 83, UTM Zone 16 North)	Easting: 425161	Northing: 4647313

### 2. Architectural Information

Resource Type and Use	Airport Concourse
Style	Miesian with contemporary alterations
Construction Date	1961
Architect/Builder	Naess & Murphy (collaboration led by chief designer Stanislaw Gladych)
Current Use	Airport Concourse
Historic Use	Airport Concourse

### 3. Description

Concourse G is located within the Terminal Core area, extending out in a linear direction south from the Rotunda, and is surrounded by 25 aircraft contact gates and associated jet bridges. Concourse G has two stories aboveground and one story belowground, with three mechanical penthouses that project above the roofline and a ramp tower located atop the central penthouse that serves ground traffic control operations. The exterior walls of Concourse G are constructed of reinforced concrete in a grid pattern defined by tinted window grid blocks surrounded by concrete column grid lines. This repetition is broken by various projecting additions including those to accommodate elevators, stairwells, and a curved addition at the east elevation at the location of the American Airlines Admirals Club lounge. The exterior of the apron level generally consists of painted concrete masonry unit walls with square concrete columns that support the overhanging first level. The mechanical penthouses at the second floor are clad in contemporary phenolic wall panels and display metal louver vents. The ramp tower is mounted atop the central mechanical penthouse and was completed c.1970. Resting on a base clad in phenolic wall panels, the cab has a nearly identical design to other ramp towers throughout the airport, with wraparound tinted windows that are angled downward and separated by metal mullions. Concourse G has undergone extensive alterations, including widening of the concourse by infilling of the original nose pockets between 1966 and 1989, construction of a ramp tower c.1970, an extension to the south to include additional gates at the concourse and apron levels in 1986, complete replacement of interior finishes over time, and perhaps most prominently, the 2001 construction of six arched clerestory window rooftop additions and expansion of the concourse level to accommodate an American Airlines Admirals Club lounge.<sup>64</sup> The clerestories increase the roof height between mechanical penthouses and each has a standing seam metal roof with insulating structural glass walls that face east and west.

### 4. Recommendation

Concourse G does not have potential for eligibility for listing in the National Register of Historic Places (National Register). Under National Register *Criterion A*, while Concourse G was constructed during an expansion period of O'Hare International Airport (O'Hare) in the early 1960s, it is isolated from the main terminal buildings and is not associated in the same manner as the concourses directly connected to Terminal 2 and Terminal 3. As such, Concourse G is unable to individually convey significance under this theme to be eligible for listing in the National Register. Under *Criterion B*, there is no specific individual associated with this building that has made a significant contribution to our history. Under *Criterion C*, the original design of Concourse G embodied characteristics of an airport concourse; however, extensive alterations have removed much of the original historic fabric of the building and have introduced a substantial amount of contemporary design elements and materials that have significantly weakened the ability for Concourse G to convey significance. Additionally, given the input of several architects and consultants on the project team, Concourse G does not appropriately represent the creative product of chief designer Stanislaw Gladych, nor any master builder or engineer. For these reasons, Concourse G is recommended not eligible for listing in the National Register.

<sup>64</sup> Nose pockets refer to recesses in the concourse footprint to accommodate the close parking of an aircraft to the gate.



## O'Hare On-Airport Inventory Form

Resource Name	Concourse G		
Historic Name	Concourse G		
CDA Building No.	260	Survey Date	June 18, 2019
Recorded By	Brian Matuk	Organization	Mead & Hunt, Inc.

### 5. Resource Location Map



Service Layer Credits: © OpenStreetMap (and) contributors, CC-BY-SA

## O'Hare On-Airport Inventory Form

Resource Name	Concourse G		
Historic Name	Concourse G		
CDA Building No.	260	Survey Date	June 18, 2019
Recorded By	Brian Matuk	Organization	Mead & Hunt, Inc.

### 6. Photographs



*Overview of Concourse G from the Chicago Department of Aviation Control Tower, with the Rotunda visible at bottom-left.*



*Exterior of Concourse G, showing window grid-block pattern at the first level and penthouse clad in phenolic wall panels.*

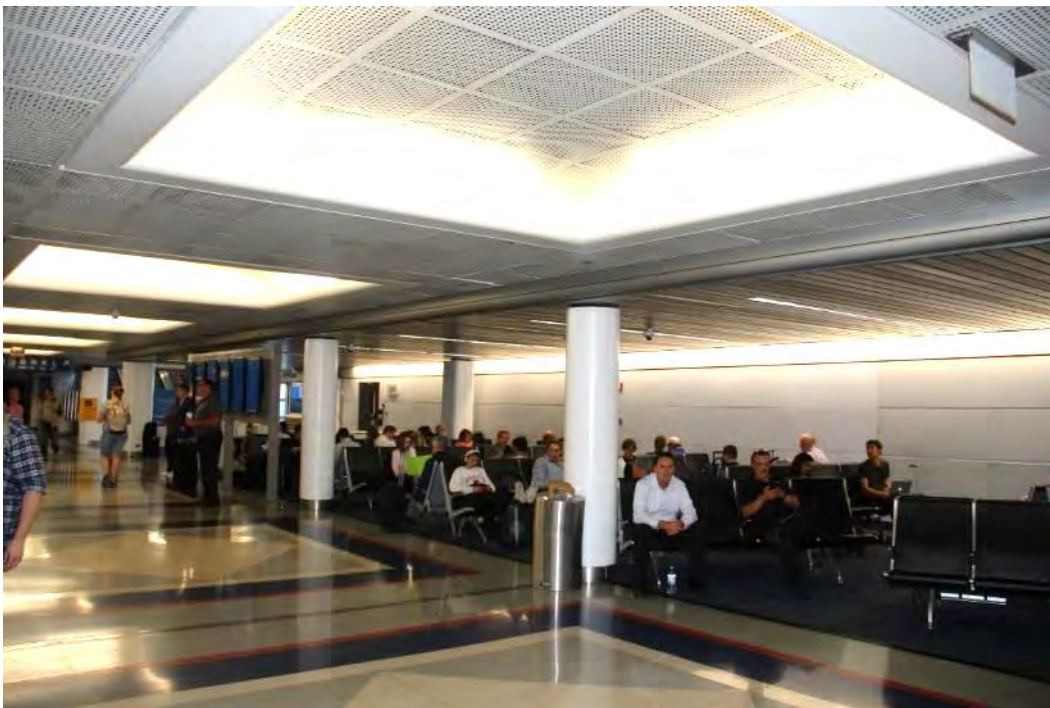


## O'Hare On-Airport Inventory Form

Resource Name	Concourse G		
Historic Name	Concourse G		
CDA Building No.	260	Survey Date	June 18, 2019
Recorded By	Brian Matuk	Organization	Mead & Hunt, Inc.



*Concourse-level interior of Concourse G showing clerestory window rooftop additions.*



*Apron-level interior of Concourse G at hold rooms.*

## O'Hare On-Airport Inventory Form

Resource Name	Former Delta Cargo Building		
Historic Name	Railway Express Agency (REA) Air Express Office and Warehouse		
CDA Building No.	527	Survey Date	July 25, 2019
Recorded By	Brian Matuk	Organization	Mead & Hunt, Inc.

### 1. Location

O'Hare International Airport		
UTM Location (NAD 83, UTM Zone 16 North)	Easting: 426681	Northing: 4647487

### 2. Architectural Information

<b>Resource Type and Use</b>	Cargo Handling Building
<b>Style</b>	Utilitarian
<b>Construction Date</b>	1973
<b>Architect/Builder</b>	Unknown
<b>Current Use</b>	Vacant
<b>Historic Use</b>	Cargo Handling Building

### 3. Description

The Former Delta Cargo Building is a one-story warehouse building located to the northeast of Terminal 5. The building is rectangular in plan with a flat roof and an exterior consisting of grey glazed brick at the approximate lower half of each elevation, and corrugated metal siding at the approximate upper half of each elevation, with contemporary lights mounted near the roofline of all elevations. There are large metal segmental garage doors at the north and east elevations—some of which are sheltered by cantilevered flat metal-frame awnings—that provide at-grade access into the building. The majority of the west elevation consists of two sets of three loading dock bays, all sheltered by a continuous flat cantilevered metal awning across the elevation. There are fully glazed metal doors and metal-frame windows on either side of the southernmost grouping of loading docks, with similar tinted glazing.

### 4. Recommendation

The Former Delta Cargo building does not have potential for eligibility for listing in the National Register of Historic Places (National Register). Under National Register *Criterion A*, the building was originally constructed as a cargo building within the cargo area of O'Hare and is not associated with any significant period of development history at O'Hare.<sup>65</sup> Under *Criterion B*, there is no specific individual associated with this building that has made a significant contribution to our history. Under *Criterion C*, this service building is utilitarian with no architectural style; therefore, it does not embody distinctive characteristics of a style, is not representative of a period or type, nor does it exhibit any rare or innovative construction methods or techniques. Additionally, the building is not known to be the work of any master builder or engineer. For these reasons, the Former Delta Cargo building is recommended not eligible for listing in the National Register.

<sup>65</sup> Several maps from the early 1970s shows the area where the Former Delta Cargo building is currently located as land operated by the Railway Express Agency (REA); however, it is not known if the subject building was ultimately constructed for REA operations.

**O'Hare On-Airport Inventory Form**

Resource Name	Former Delta Cargo Building		
Historic Name	Railway Express Agency (REA) Air Express Office and Warehouse		
CDA Building No.	527	Survey Date	July 25, 2019
Recorded By	Brian Matuk	Organization	Mead & Hunt, Inc.

**5. Resource Location Map**

Service Layer Credits: © OpenStreetMap (and) contributors, CC-BY-SA



**O'Hare On-Airport Inventory Form**

Resource Name	Former Delta Cargo Building		
Historic Name	Railway Express Agency (REA) Air Express Office and Warehouse		
CDA Building No.	527	Survey Date	July 25, 2019
Recorded By	Brian Matuk	Organization	Mead & Hunt, Inc.

**6. Photographs**

*South and east elevations of the Former Delta Cargo Building. Photograph from the Chicago Department of Aviation.*



*East and north elevations of the Former Delta Cargo Building. Photograph from the Chicago Department of Aviation.*

## O'Hare On-Airport Inventory Form

Resource Name	Outside Plumber Shop		
Historic Name	Unknown		
CDA Building No.	523	Survey Date	July 25, 2019
Recorded By	Brian Matuk	Organization	Mead & Hunt, Inc.

### 1. Location

O'Hare International Airport		
UTM Location (NAD 83, UTM Zone 16 North)	Easting: 426718	Northing: 4647446

### 2. Architectural Information

<b>Resource Type and Use</b>	Plumbing Shop
<b>Style</b>	Utilitarian
<b>Construction Date</b>	1973
<b>Architect/Builder</b>	Unknown
<b>Current Use</b>	Plumbing Shop
<b>Historic Use</b>	Plumbing Shop

### 3. Description

The Outside Plumber Shop is a one-story building located in the East Cargo Area to the northeast of Terminal 5 at O'Hare International Airport (O'Hare). The building is rectangular in plan with a flat roof and an exterior mainly consisting of grey glazed brick. Large metal roll-up garage doors occupy the full width of the south and north elevations. There are doors at the southern and northern ends of the east elevation, each with what appear to be metal panels situated above and extending to the roofline. The white glazed bricks above the garage door on the south elevation appear to be replacements.

### 4. Recommendation

The Outside Plumber Shop does not have potential for eligibility for listing in the National Register of Historic Places (National Register). Under National Register *Criterion A*, the building was originally constructed as a City of Chicago Public Works project in 1973 and is not associated with any significant period of development history at O'Hare. Under *Criterion B*, there is no specific individual associated with this building that has made a significant contribution to our history. Under *Criterion C*, this service building is utilitarian with no architectural style; therefore, it does not embody distinctive characteristics of a style, is not representative of a period or type, nor does it exhibit any rare or innovative construction methods or techniques. Additionally, the building is not known to be the work of any master builder or engineer. For these reasons, the Outside Plumber Shop is recommended not eligible for listing in the National Register.

**O'Hare On-Airport Inventory Form**

Resource Name	Outside Plumber Shop		
Historic Name	Unknown		
CDA Building No.	523	Survey Date	July 25, 2019
Recorded By	Brian Matuk	Organization	Mead & Hunt, Inc.

**5. Resource Location Map**

Service Layer Credits: © OpenStreetMap (and) contributors, CC-BY-SA



**O'Hare On-Airport Inventory Form**

Resource Name	Outside Plumber Shop		
Historic Name	Unknown		
CDA Building No.	523	Survey Date	July 25, 2019
Recorded By	Brian Matuk	Organization	Mead & Hunt, Inc.

**6. Photographs**

*South and east elevations of the Outside Plumber Shop. Photo from the Chicago Department of Aviation.*



*West and south elevations of the Outside Plumber Shop. Photo from the Chicago Department of Aviation.*

**Appendix D. Federal Aviation Administration and State Historic  
Preservation Office Correspondence and  
Concurrence Letters for Determinations of Eligibility**





U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

Great Lakes Region  
Illinois, Indiana, Michigan,  
Minnesota, North Dakota,  
Ohio, South Dakota,  
Wisconsin

Chicago Airports District Office  
2300 East Devon Avenue  
Des Plaines, Illinois 60018

November 4, 2019

Mr. Anthony Rubano  
Acting Cultural Resources Coordinator  
State Historic Preservation Office  
IDNR – One Natural Resources Way  
Springfield, IL 62702-1271

Mr. Rubano:

Enclosed you will find a copy of a document entitled, *Determination of Eligibility: Rotunda, Chicago O'Hare International Airport*. We request that you review the Federal Aviation Administration document to determine if you concur that the Rotunda is eligible for listing on the National Register of Historic Places under Criterion A: Transportation and Criterion C: Architecture.

If you have any questions, please feel free to call me at (847) 294-7354.

Sincerely,

A handwritten signature in black ink that reads "Amy B. Hanson". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Amy B. Hanson  
Environmental Protection Specialist  
Chicago Airports District Office  
Federal Aviation Administration

Cc: Aaron Frame, City of Chicago Department of Aviation  
Jamie Rhee, City of Chicago Department of Aviation



## Illinois Department of Natural Resources

One Natural Resources Way Springfield, Illinois 62702-1271

[www.dnr.illinois.gov](http://www.dnr.illinois.gov)

Mailing Address: 1 Old State Capitol Plaza, Springfield, IL 62701

JB Pritzker, Governor  
Colleen Callahan, Director

FAX (217) 524-7525

Cook County

Chicago

National Register Eligibility, Rotunda at O'Hare International Airport

10000 W. O'Hare Ave.

SHPO Log #016120219

December 18, 2019

Amy Hanson

U.S. Department of Transportation

Federal Aviation Administration

Chicago Airports District Office

2300 E. Devon Ave., Suite 201

Des Plaines, IL 60018

Dear Ms. Hanson:

Thank you for requesting comments from our office concerning the possible effects of your project on cultural resources. Our comments are required by Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations, 36 CFR 800: "Protection of Historic Properties".

We concur with your finding that the Rotunda at O'Hare International Airport is eligible for listing on the National Register of Historic Places.

If you have any questions, please call 217/782-4836.

Sincerely,

Robert F. Appleman  
Deputy State Historic  
Preservation Officer

c: Aaron Frame, Deputy Commissioner, Chicago Department of Aviation  
Jamie Rhee, Commissioner, Chicago Department of Aviation



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

Great Lakes Region  
Illinois, Indiana, Michigan,  
Minnesota, North Dakota,  
Ohio, South Dakota,  
Wisconsin

Chicago Airports District Office  
2300 East Devon Avenue  
Des Plaines, Illinois 60018

November 4, 2019

Mr. Anthony Rubano  
Acting Cultural Resources Coordinator  
State Historic Preservation Office  
IDNR – One Natural Resources Way  
Springfield, IL 62702-1271

Mr. Rubano:

Enclosed you will find a copy of a document entitled, *Determination of Eligibility: Terminal 2, Chicago O'Hare International Airport*. We request that you review the Federal Aviation Administration document to determine if you concur that Terminal 2, including Concourses E&F, is not eligible for listing on the National Register of Historic Places.

If you have any questions, please feel free to call me at (847) 294-7354.

Sincerely,

A handwritten signature in black ink that reads "Amy B. Hanson". The signature is fluid and cursive, with the first name "Amy" being more prominent.

Amy B. Hanson  
Environmental Protection Specialist  
Chicago Airports District Office  
Federal Aviation Administration

Cc: Aaron Frame, City of Chicago Department of Aviation  
Jamie Rhee, City of Chicago Department of Aviation



## Illinois Department of Natural Resources

One Natural Resources Way Springfield, Illinois 62702-1271

www.dnr.illinois.gov

Mailing Address: 1 Old State Capitol Plaza, Springfield, IL 62701

JB Pritzker, Governor

Colleen Callahan, Director

FAX (217) 524-7525

Cook County  
Chicago

National Register Eligibility, Terminal 2 and Concourses E & F at O'Hare International Airport  
10000 W. O'Hare Ave.  
SHPO Log #014120219

December 18, 2019

Amy Hanson  
U.S. Department of Transportation  
Federal Aviation Administration  
Chicago Airports District Office  
2300 E. Devon Ave., Suite 201  
Des Plaines, IL 60018

Dear Ms. Hanson:

We have reviewed the information you have provided concerning the referenced project.

We concur with our finding that these structures lack sufficient significance for listing on the National Register of Historic Places.

This letter does not constitute a State Historic Preservation "Sign-off" on the project for the purposes of Section 106 of the National Historic Preservation Act of 1966, as amended.

If you have any further questions, please call 217/782-4836.

Sincerely,

A handwritten signature in black ink, appearing to read 'Robert F. Appleman'.

Robert F. Appleman  
Deputy State Historic  
Preservation Officer

c: Aaron Frame, Deputy Commissioner, Chicago Department of Aviation  
Jamie Rhee, Commissioner, Chicago Department of Aviation





U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

Great Lakes Region  
Illinois, Indiana, Michigan,  
Minnesota, North Dakota,  
Ohio, South Dakota,  
Wisconsin

Chicago Airports District Office  
2300 East Devon Avenue  
Des Plaines, Illinois 60018

November 4, 2019

Mr. Anthony Rubano  
Acting Cultural Resources Coordinator  
State Historic Preservation Office  
IDNR – One Natural Resources Way  
Springfield, IL 62702-1271

Mr. Rubano:

Enclosed you will find a copy of a document entitled, *Determination of Eligibility: Terminal 3, Chicago O'Hare International Airport*. We request that you review the Federal Aviation Administration document to determine if you concur that Terminal 3, including Concourses H, K and L, is not eligible for listing on the National Register of Historic Places.

If you have any questions, please feel free to call me at (847) 294-7354.

Sincerely,

A handwritten signature in black ink that reads "Amy B. Hanson". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Amy B. Hanson  
Environmental Protection Specialist  
Chicago Airports District Office  
Federal Aviation Administration

Cc: Aaron Frame, City of Chicago Department of Aviation  
Jamie Rhee, City of Chicago Department of Aviation



## Illinois Department of Natural Resources

One Natural Resources Way Springfield, Illinois 62702-1271

[www.dnr.illinois.gov](http://www.dnr.illinois.gov)

Mailing Address: 1 Old State Capitol Plaza, Springfield, IL 62701

JB Pritzker, Governor

Colleen Callahan, Director

FAX (217) 524-7525

Cook County

Chicago

National Register Eligibility, Terminal 3 and Concourses H, K and L at O'Hare International Airport

10000 W. O'Hare Ave.

SHPO Log #015120219

December 18, 2019

Amy Hanson

U.S. Department of Transportation

Federal Aviation Administration

Chicago Airports District Office

2300 E. Devon Ave., Suite 201

Des Plaines, IL 60018

Dear Ms. Hanson:

We have reviewed the information you have provided concerning the referenced project.

We concur with your finding that these structures lack sufficient significance for listing on the National Register of Historic Places.

This letter does not constitute a State Historic Preservation "Sign-off" on the project for the purposes of Section 106 of the National Historic Preservation Act of 1966, as amended.

If you have any further questions, please call 217/782-4836.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert F. Appleman".

Robert F. Appleman

Deputy State Historic

Preservation Officer

c: Aaron Frame, Deputy Commissioner, Chicago Department of Aviation

Jamie Rhee, Commissioner, Chicago Department of Aviation



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

Great Lakes Region  
Illinois, Indiana, Michigan,  
Minnesota, North Dakota,  
Ohio, South Dakota,  
Wisconsin

Chicago Airports District Office  
2300 East Devon Avenue  
Des Plaines, Illinois 60018

November 4, 2019

Mr. Anthony Rubano  
Acting Cultural Resources Coordinator  
State Historic Preservation Office  
IDNR – One Natural Resources Way  
Springfield, IL 62702-1271

Mr. Rubano:

Enclosed you will find a copy of a document entitled, *Determination of Eligibility: Heating & Refrigeration Plant Complex, Chicago O'Hare International Airport*. We request that you review the Federal Aviation Administration document to determine if you concur that the Heating & Refrigeration Plant Complex is not eligible for listing on the National Register of Historic Places.

If you have any questions, please feel free to call me at (847) 294-7354.

Sincerely,

A handwritten signature in black ink that reads "Amy B. Hanson".

Amy B. Hanson  
Environmental Protection Specialist  
Chicago Airports District Office  
Federal Aviation Administration

Cc: Aaron Frame, City of Chicago Department of Aviation  
Jamie Rhee, City of Chicago Department of Aviation



## Illinois Department of Natural Resources

One Natural Resources Way Springfield, Illinois 62702-1271

www.dnr.illinois.gov

Mailing Address: 1 Old State Capitol Plaza, Springfield, IL 62701

JB Pritzker, Governor

Colleen Callahan, Director

FAX (217) 524-7525

Cook County

Chicago

National Register Eligibility, Heating & Refrigeration Plant Complex at O'Hare International Airport

10000 W. O'Hare Ave.

SHPO Log #013120219

December 18, 2019

Amy Hanson

U.S. Department of Transportation

Federal Aviation Administration

Chicago Airports District Office

2300 E. Devon Ave., Suite 201

Des Plaines, IL 60018

Dear Ms. Hanson:

We have reviewed the information you have provided concerning the referenced project.

We concur with your finding that these structures lack sufficient significance for listing on the National Register of Historic Places.

This letter does not constitute a State Historic Preservation "Sign-off" on the project for the purposes of Section 106 of the National Historic Preservation Act of 1966, as amended.

If you have any further questions, please call 217/782-4836.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert F. Appleman".

Robert F. Appleman  
Deputy State Historic  
Preservation Officer

c: Aaron Frame, Deputy Commissioner, Chicago Department of Aviation  
Jamie Rhee, Commissioner, Chicago Department of Aviation





U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

Great Lakes Region  
Illinois, Indiana, Michigan,  
Minnesota, North Dakota,  
Ohio, South Dakota,  
Wisconsin

Chicago Airports District Office  
2300 East Devon Avenue  
Des Plaines, Illinois 60018

November 4, 2019

Mr. Anthony Rubano  
Acting Cultural Resources Coordinator  
State Historic Preservation Office  
IDNR – One Natural Resources Way  
Springfield, IL 62702-1271

Mr. Rubano:

Enclosed you will find a copy of a document entitled, *Determination of Eligibility: City of Chicago Department of Aviation Control Tower, Chicago O'Hare International Airport*. We request that you review the Federal Aviation Administration document to determine if you concur that the City of Chicago Department of Aviation Control Tower is eligible for listing on the National Register of Historic Places under Criterion A: Transportation and Criterion C: Architecture.

If you have any questions, please feel free to call me at (847) 294-7354.

Sincerely,

A handwritten signature in black ink that reads "Amy B. Hanson".

Amy B. Hanson  
Environmental Protection Specialist  
Chicago Airports District Office  
Federal Aviation Administration

Cc: Aaron Frame, City of Chicago Department of Aviation  
Jamie Rhee, City of Chicago Department of Aviation



## Illinois Department of Natural Resources

One Natural Resources Way Springfield, Illinois 62702-1271

[www.dnr.illinois.gov](http://www.dnr.illinois.gov)

Mailing Address: 1 Old State Capitol Plaza, Springfield, IL 62701

JB Pritzker, Governor

Colleen Callahan, Director

FAX (217) 524-7525

Cook County

Chicago

National Register Eligibility, City of Chicago Department of Aviation Control Tower at O'Hare International Airport

10000 W. O'Hare Ave.

SHPO Log #012120219

December 18, 2019

Amy Hanson

U.S. Department of Transportation

Federal Aviation Administration

Chicago Airports District Office

2300 E. Devon Ave., Suite 201

Des Plaines, IL 60018

Dear Ms. Hanson:

Thank you for requesting comments from our office concerning the possible effects of your project on cultural resources. Our comments are required by Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations, 36 CFR 800: "Protection of Historic Properties".

We concur with your finding that the City of Chicago Department of Aviation Control Tower at O'Hare International Airport is eligible for listing on the National Register of Historic Places.

If you have any questions, please call 217/782-4836.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert F. Appleman".

Robert F. Appleman

Deputy State Historic

Preservation Officer

c: Aaron Frame, Deputy Commissioner, Chicago Department of Aviation  
Jamie Rhee, Commissioner, Chicago Department of Aviation



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

Great Lakes Region  
Illinois, Indiana, Michigan,  
Minnesota, North Dakota,  
Ohio, South Dakota,  
Wisconsin

Chicago Airports District Office  
2300 East Devon Avenue  
Des Plaines, Illinois 60018

November 4, 2019

Mr. Anthony Rubano  
Acting Cultural Resources Coordinator  
State Historic Preservation Office  
IDNR – One Natural Resources Way  
Springfield, IL 62702-1271

Mr. Rubano:

Enclosed you will find a copy of a document entitled, *Determination of Eligibility: O'Hare Telephone Building and Garage, Chicago O'Hare International Airport*. We request that you review the Federal Aviation Administration document to determine if you concur that the O'Hare Telephone Building and Garage are not eligible for listing on the National Register of Historic Places.

If you have any questions, please feel free to call me at (847) 294-7354.

Sincerely,

Amy B. Hanson  
Environmental Protection Specialist  
Chicago Airports District Office  
Federal Aviation Administration

Cc: Aaron Frame, City of Chicago Department of Aviation  
Jamie Rhee, City of Chicago Department of Aviation



## Illinois Department of Natural Resources

One Natural Resources Way Springfield, Illinois 62702-1271  
www.dnr.illinois.gov

Mailing Address: 1 Old State Capitol Plaza, Springfield, IL 62701

JB Pritzker, Governor  
Colleen Callahan, Director

FAX (217) 524-7525

Cook County

Chicago

National Register Eligibility, O'Hare Telephone Building and Garage at O'Hare International Airport  
10000 W. O'Hare Ave.  
SHPO Log #011120219

December 18, 2019

Amy Hanson  
U.S. Department of Transportation  
Federal Aviation Administration  
Chicago Airports District Office  
2300 E. Devon Ave., Suite 201  
Des Plaines, IL 60018

Dear Ms. Hanson:

Thank you for requesting comments from our office concerning the possible effects of your project on cultural resources. Our comments are required by Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations, 36 CFR 800: "Protection of Historic Properties".

In our opinion, we disagree with your finding and have determined that the O'Hare Telephone Building and Garage are eligible for listing on the National Register of Historic Places.

If you have any questions, please call 217/782-4836.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert F. Appleman", written over a horizontal line.

Robert F. Appleman  
Deputy State Historic  
Preservation Officer

c: Aaron Frame, Deputy Commissioner, Chicago Department of Aviation  
Jamie Rhee, Commissioner, Chicago Department of Aviation



**From:** Hanson, Amy (FAA) <Amy.Hanson@faa.gov>  
**Sent:** Monday, December 30, 2019 3:43 PM  
**To:** Amy Squitieri; Christina Slattery  
**Cc:** dwasiuk@hmmh.com; Kurt M. Hellauer; ORDTAP; Colleen Bosold; Brad Rolf  
**Subject:** FW: FAA response to SHPO notice of disagreement on the Determination of Eligibility for the O'Hare Telephone Building and Garage, Chicago O'Hare International Airport

**Follow Up Flag:** Flag for follow up  
**Flag Status:** Completed

**Categories:** Filed by Newforma

Forwarding:

Amy B. Hanson  
 Environmental Protection Specialist  
 Chicago Airports District Office  
 Federal Aviation Administration  
 847-294-7354

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**From:** Rubano, Anthony <Anthony.Rubano@Illinois.gov>  
**Sent:** Monday, December 30, 2019 3:21 PM  
**To:** Hanson, Amy (FAA) <Amy.Hanson@faa.gov>  
**Cc:** Wallace, Carol <Carol.Wallace@Illinois.gov>  
**Subject:** RE: FAA response to SHPO notice of disagreement on the Determination of Eligibility for the O'Hare Telephone Building and Garage, Chicago O'Hare International Airport

Hi Amy,

Sorry about that. You were clear that you wanted an explanation of why we disagreed on the eligibility of the telephone building and garage, and we intended that our letter include such an explanation, but it just didn't make it in there. We will issue a revised letter that contains the explanation. In the meantime, here's the meat of that forthcoming letter:

This office does not concur with the FAA's determination that the O'Hare Telephone Building and Garage are not eligible for the NRHP.

Page 45 states that the 1960-61 building does not have significance for its association related to technological development or innovation related to telecommunications and in particular to electronic switching because it predates the roll out of electronic switching in 1965, and there is no indication it was designed for electronic switching equipment. It's not proper to say that because a building predates a technological development by 4 years (and that because it did not predict that development), the building is not significant. While it may be true that the building is not significant for electronic switching, that's not the proper technological context to which to compare it. This was the nerve center for airport communications. Just as the control tower is the nerve center for the aviation communication in an airport, this was the nerve center for the ground-based communication. O'Hare would not have been able to function without either. Bell Telephone gave this small building and its equipment a budget of \$4 million or about \$35 million in today's money. It's about 24,000 square feet in size, which means that it cost about \$1,600 per square foot (almost \$14,000 per square foot today). That's an enormous per-square foot cost, and a good indicator of the level of attention and technology

this center was given. It contained the most current and advanced equipment that was available, several banks of which survive inside on the second floor. The March 11, 1960 *Tribune* article "Plan 'Dial Anywhere' O'Hare Phone System" stated: "No other airport in the world will have a system exactly like O'Hare...O'Hare's new net will be like the newest military phone communications network." A 10/5/61 *Tribune* article ("O'Hare to Get Improved New Phone System") states: "That the new center will be an electronic marvel is proven by the service that is planned for the airport and surrounding territory, telephone company officials said. All subscribers, including air lines and concessionaries at the huge field, will be served by a single control office and, thru an electronic relay system, it will be necessary to dial only four numbers for immediate connection to any telephone on the base from any other telephone on the base...The cost for calls from O'Hare to Chicago will drop from 15 to 10 cents each, resulting in a saving to the public and eliminating the need for an operator's assistance in such calls. The new building will not be served by overhead wiring but by lines placed in underground ducts within the airport property." The technology in this building reduced the cost of calls to and from the airport by a third. Clearly the technology was state of the art for 1961, even by military standards, and should not be dismissed because it doesn't represent developments that occurred in 1965.

Page 45 says the building was not outlined in the master plan. But a 3/11/60 *Tribune* article states "The site was chosen with the approval and consultation of Naess and Murphy, the architectural and general contract managing firm for the City in the major O'Hare development program." Page 45 also says that it is not a significant example of the expansion of O'Hare and did not play a significant role in Chicago transportation history. It is not correct. As the sole and dedicated communications center for the airport, it played a critical role in O'Hare's very function. All airline, terminal, gate, and concessionaire communication routed through this facility, as did all calls incoming to and outgoing from the airport. Without this building, there was no communication within the airport or from the airport to the outside world. There are banks of equipment still in place that show current and defunct airlines and terminals.

Page 40 states, "The building also has limited ornamentation reflecting economical design and avoiding an appearance of luxury as promoted by AT&T." The building's lack of overt or applied ornament is exactly in line with the Miesian design philosophy that was used in its design. The exposed concrete structural frame, solid brick infill partitions, modular plan and severe exterior appearance are all characteristics of Miesian architecture. The small lobby and main office are appointed with a well detailed storefront system and full-height glazed partitions, polished terrazzo floor, glazed terra-cotta walls and an ornamental dedicatory plaque. There are no interior public spaces because of the utilitarian nature of the interior functions. But from the exterior and lobby, it is exactly consistent with the overall Miesian design that Naess and Murphy used in the rest of the airport. Secondly, the avoidance of an appearance of luxury was only one of Bell's directives. It also wanted its buildings to be welcome additions to its surroundings, compatibility, and general economization. This building is an excellent and creative solution to those edicts. For its central offices, Bell wanted buildings that were strong, literally and figuratively, and that portrayed the technology and reliability of the company. This building does exactly that, with its unassailable appearance and clear visual communication of its brawny structure. Bell didn't skimp on its architecture, as evidenced by its commissioning Eero Saarinen in 1959 to design its laboratory in Holmdel, NJ. Companies did not hire Saarinen because they wanted an inexpensive, under-designed building. They hired him to provide creative, headline-making works of art, which is exactly what he provided at Holmdel.

Page 46 states that central telephone offices were a common property type. While this is true, this building is not a common iteration for a central telephone office. No other, or very few other, central offices at the time looked like this building. Its lack of ornament is characteristic of its Miesian design. Page 46 says it is "one of many postwar examples that had little to no style or architectural ornamentation." The lack of ornamentation here is stylistic. And it is simply untrue that the building lacks style. Page 47 states that the building does not "appropriately reflect the work of Naess and Murphy in any manner that would represent a significant association with the architectural firm." This is not correct. This building precisely fits into the Miesian aesthetic that the firm embraced since its first Miesian commission, the Jardine Water Filtration Plant, whose design the firm started on in 1953. C.F. Murphy partner Carter Manny, in his oral history at the Art Institute of Chicago, said



that Stan Gladych brought Miesian design to the firm. Gladych designed Jardine, and we know he worked on O'Hare. The firm was fully steeped in Miesian design and the design espoused by the Illinois Institute of Technology by the time it was designing O'Hare and this building. Miesian influences continued at C.F. Murphy long after O'Hare was completed. The firm employed the same Miesian design philosophy for its 1970 AT&T switching station on Dorchester in Chicago. See attached article and:  
[https://www.google.com/maps/place/6050+S+Dorchester+Ave,+Chicago,+IL+60637/@41.7845181,-87.5914271,3a,75y,264.19h,98.79t/data=!3m6!1e1!3m4!1sCRxv0cknU6CQy3H2\\_SfGaw!2e0!7i16384!8i8192!4m5!3m4!1s0x880e291a883c7f49:0x55132863657c1e1f!8m2!3d41.7845683!4d-87.5918744](https://www.google.com/maps/place/6050+S+Dorchester+Ave,+Chicago,+IL+60637/@41.7845181,-87.5914271,3a,75y,264.19h,98.79t/data=!3m6!1e1!3m4!1sCRxv0cknU6CQy3H2_SfGaw!2e0!7i16384!8i8192!4m5!3m4!1s0x880e291a883c7f49:0x55132863657c1e1f!8m2!3d41.7845683!4d-87.5918744). Instead of white brick, the firm used brown brick. While the O'Hare building has excellent integrity, Dorchester's integrity is less intact because its central windows were subsequently bricked in.

Page 47 continues that the building and garage have a "simplistic utilitarian design, lack ornamentation, and do not represent a distinctive or fully formed example of any architectural style." This is simply not correct. The straightforward design and lack of ornament, in addition to studied proportions, a pure cubic form, expressed concrete structure, solid brick infill panels, and a flat roof with no expressed parapet, are absolutely representative of a distinctive and fully formed architectural style. They are a direct embodiment of the design philosophies of Ludwig Mies van der Rohe, a design professor at the Illinois Institute of Technology, under whom many Murphy employees studied.

Anthony Rubano  
 Deputy State Historic Preservation Officer  
 Illinois State Historic Preservation Office  
 Illinois Department of Natural Resources  
 One Old State Capitol Plaza  
 Springfield, Illinois 62701  
 (217) 782-7459  
[anthony.rubano@illinois.gov](mailto:anthony.rubano@illinois.gov)

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**From:** Hanson, Amy (FAA) <[Amy.Hanson@faa.gov](mailto:Amy.Hanson@faa.gov)>  
**Sent:** Thursday, December 19, 2019 3:33 PM  
**To:** Rubano, Anthony <[Anthony.Rubano@Illinois.gov](mailto:Anthony.Rubano@Illinois.gov)>  
**Cc:** Young, LaDonna <[LaDonna.Young@Illinois.gov](mailto:LaDonna.Young@Illinois.gov)>; Amy Squitieri <[amy.squitieri@meadhunt.com](mailto:amy.squitieri@meadhunt.com)>; dwasiuk@hmmh.com; Kurt M. Hellauer <[khellauer@hmmh.com](mailto:khellauer@hmmh.com)>; ORDTAP <[ORDTAP@hmmh.com](mailto:ORDTAP@hmmh.com)>; Wells, Patrick J (FAA) <[Patrick.J.Wells@faa.gov](mailto:Patrick.J.Wells@faa.gov)>; Basic, Catherine (FAA) <[Catherine.Basic@faa.gov](mailto:Catherine.Basic@faa.gov)>; Butler, Gail (FAA) <[gail.butler@faa.gov](mailto:gail.butler@faa.gov)>; DeLeon, Jose (FAA) <[Jose.DeLeon@faa.gov](mailto:Jose.DeLeon@faa.gov)>; Terry, Nan L (FAA) <[Nan.L.Terry@faa.gov](mailto:Nan.L.Terry@faa.gov)>; Aaron Frame <[Aaron.Frame@cityofchicago.org](mailto:Aaron.Frame@cityofchicago.org)>; Jamie Rhee <[Jamie.Rhee1@cityofchicago.org](mailto:Jamie.Rhee1@cityofchicago.org)>; Bartell, Deb (FAA) <[deb.bartell@faa.gov](mailto:deb.bartell@faa.gov)>; Christina Slattery <[christina.slattery@meadhunt.com](mailto:christina.slattery@meadhunt.com)>; Colleen Bosold <[Colleen.Bosold@meadhunt.com](mailto:Colleen.Bosold@meadhunt.com)>; Brad Rolf <[Brad.Rolf@meadhunt.com](mailto:Brad.Rolf@meadhunt.com)>  
**Subject:** [External] FAA response to SHPO notice of disagreement on the Determination of Eligibility for the O'Hare Telephone Building and Garage, Chicago O'Hare International Airport

Anthony,

The attached letter is being sent via US mail today, but I am sending you this electronic copy.

Thank you and Happy Holidays.

Amy B. Hanson  
 Environmental Protection Specialist  
 Chicago Airports District Office  
 Federal Aviation Administration  
 847-294-7354

State of Illinois - CONFIDENTIALITY NOTICE: The information contained in this communication is confidential, may be attorney-client privileged or attorney work product, may constitute inside information or internal deliberative staff communication, and is intended only for the use of the addressee. Unauthorized use, disclosure or copying of this communication or any part thereof is strictly prohibited and may be unlawful. If you have received this communication in error, please notify the sender immediately by return e-mail and destroy this communication and all copies thereof, including all attachments. Receipt by an unintended recipient does not waive attorney-client privilege, attorney work product privilege, or any other exemption from disclosure.





## Illinois Department of Natural Resources

One Natural Resources Way Springfield, Illinois 62702-1271  
www.dnr.illinois.gov

JB Pritzker, Governor  
Colleen Callahan, Director

FAX (217) 524-7525

Cook County

Chicago

National Register Eligibility, O'Hare Telephone Building and Garage at O'Hare International Airport  
10000 W. O'Hare Ave.  
SHPO Log #011120219

March 16, 2020

Amy Hanson

U.S. Department of Transportation

Federal Aviation Administration

Chicago Airports District Office

2300 E. Devon Ave., Suite 201

Des Plaines, IL 60018

Dear Ms. Hanson:

Thank you for requesting comments from our office concerning the determination of eligibility for the O'Hare Telephone Building and Garage at O'Hare International Airport (SHPO Log #011120219). While this letter does not serve as a formal objection to the Federal Aviation Administration's consultant determination for the O'Hare Telephone Building and Garage, please find our comments below as required by Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations, 36 CFR 800: "Protection of Historic Properties".

### Historic Relevance (Criterion A)

Though it predates the roll out of electronic switching in 1965, this building (1960-61) was critical to the operations of O'Hare, as the nerve center for ground-based airport communications. This significance is marked by Bell Telephone's allocation of \$4 million to it, which would equal about \$35 million in today's economy. The cost is a good indicator of the level of attention and technology this center was given. It contained the most current and advanced equipment that was available, several banks of which survive inside on the second floor. The technology was state of the art for 1961, even by military standards. The March 11, 1960 *Chicago Tribune* article "Plan 'Dial Anywhere' O'Hare Phone System" stated: "No other airport in the world will have a system exactly like O'Hare...O'Hare's new net will be like the newest military phone communications network."

An October 5, 1951 *Chicago Tribune* article ("O'Hare to Get Improved New Phone System") states: "That the new center will be an electronic marvel is proven by the service that is planned for the airport and surrounding territory, telephone company officials said. All subscribers, including air lines and

concessionaries at the huge field, will be served by a single control office and, thru an electronic relay system, it will be necessary to dial only four numbers for immediate connection to any telephone on the base from any other telephone on the base...The cost for calls from O'Hare to Chicago will drop from 15 to 10 cents each, resulting in a saving to the public and eliminating the need for an operator's assistance in such calls. The new building will not be served by overhead wiring but by lines placed in underground ducts within the airport property."

As the sole and dedicated communications center for the airport, it played a critical role in O'Hare's very function. All airline, terminal, gate, and concessionaire communication routed through this facility, as did all calls incoming to and outgoing from the airport. Without this building, there was no communication within the airport or from the airport to the outside world. There are banks of equipment still in place that show current and defunct airlines and terminals. Also, as an example of the expansion of O'Hare, it plays a significant role in the transportation history of the City of Chicago.

#### Architectural Relevance (Criterion C)

The building is an excellent example of Modernist architecture, as influenced by Ludwig Mies van der Rohe. Designed by Stan Gladych of the prominent architectural firm C.F. Murphy and Associates, its lack of overt or applied ornament is critical to its architectural design and aesthetic. It has an exposed-concrete structural frame, solid brick infill partitions, modular plan, and severe exterior appearance. The small lobby and main office were built with a detailed storefront system and full-height glazed partitions, polished terrazzo floor, glazed terra-cotta walls, and an ornamental dedicatory plaque. The Miesian design found throughout the airport is reflected in this utilitarian building; the appearance of efficiency and avoidance of applied ornament fit the directive of this type of architecture. This distinctive Miesian aesthetic is representative of C.F. Murphy in general, and Miesian influences continued in the firm's work long after O'Hare was completed.

Please feel free to call 217-782-4836 if you have any questions.

Sincerely,



Robert F. Appleman  
Deputy State Historic  
Preservation Officer

c: Aaron Frame, Deputy Commissioner, Chicago Department of Aviation  
Jamie Rhee, Commissioner, Chicago Department of Aviation



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

Great Lakes Region  
Illinois, Indiana, Michigan,  
Minnesota, North Dakota,  
Ohio, South Dakota,  
Wisconsin

Chicago Airports District Office  
2300 East Devon Avenue  
Des Plaines, Illinois 60018

March 20, 2020

Ms. Joy Beasley  
Keeper of the National Register of Historic Places  
National Park Service  
National Register of Historic Places  
1849 C Street, NW (7228)  
Washington, DC 20240

Ms. Beasley:

The Federal Aviation Administration (FAA) is conducting studies in support of Section 106 compliance for a proposed project at O'Hare International Airport (O'Hare). Based on the *Determination of Eligibility (DOE) for the O'Hare Telephone Building and Garage*, the FAA determined the property is not eligible for the National Register of Historic Places. The FAA determination letter and documentation is attached as Appendix A to the *Technical Memorandum, O'Hare Telephone Building and Garage Determination of Eligibility, Additional Historic Context and Response to SHPO Comments*.

After review by the Illinois State Historic Preservation Office (SHPO), the SHPO disagreed with the FAA finding (letter dated December 18, 2019). The FAA reviewed comments received from the SHPO via email on December 30, 2019, and an additional letter on March 16, 2020, and evaluated the new information in considering how to proceed. The SHPO determination letter and comments are attached as Appendix B.

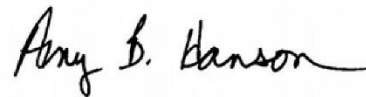
The FAA, with support from its consultant, conducted additional research to investigate points made by SHPO. The FAA also looked for precedent how support and utility buildings, with similarities to the O'Hare Telephone building and Garage, have been evaluated as part of Section 106 compliance conducted for airport projects nationwide in the past 10-15 years. Consideration of the O'Hare Telephone Building and Garage within a potential historic district is addressed in the latter part of the technical memorandum attached.

After considering additional information, the FAA maintains its determination of not eligible for the O'Hare Telephone Building and Garage and is therefore submitting this

package to the Keeper for its formal determination in accordance with 36 CFR § 63.2 - Determination of eligibility process.

If you have any questions, please feel free to call me at (847) 294-7354.

Sincerely,



Amy B. Hanson  
Environmental Protection Specialist  
Chicago Airports District Office  
Federal Aviation Administration

Cc: Aaron Frame, City of Chicago Department of Aviation  
Jamie Rhee, City of Chicago Department of Aviation  
Robert Appleman, Illinois State Historic Preservation Office  
Carol Wallace, Illinois State Historic Preservation Office





## United States Department of the Interior

NATIONAL PARK SERVICE

1849 C Street, NW  
Washington, DC 20240

H32(2280)

May 5, 2020

Ms. Amy B. Hanson  
Environmental Protection Specialist  
Chicago Airports District Office  
Federal Aviation Administration  
2300 East Devon Avenue  
Des Plaines, Illinois 60018

Dear Ms. Hanson:

Thank you for your request for a Determination of Eligibility for the O'Hare Telephone Building and Garage, which I received on March 23, 2020.

In a letter dated November 4, 2019, from the Federal Aviation Administration (FAA) to the Illinois State Historic Preservation Office (ILSHPO), the FAA requested ILSHPO concur with the FAA's determination that O'Hare Telephone Building and Garage are not eligible for listing on the National Register of Historic Places (NRHP). In a letter dated December 18, 2019, ILSHPO disagreed with the FAA's determination, and in an email dated December 30, 2019, ILSHPO provided a detailed explanation for its disagreement. In a letter dated March 16, 2020, ILSHPO provided additional explanation for its disagreement.

In your March 20, 2020 letter to me, you have requested a Determination of Eligibility in accordance with 36 CFR § 63.2, et seq. Your request is accompanied by additional support for the FAA's determination which specifically addresses ILSHPO's concerns and presents additional research.

Barbara Wyatt of the NRHP staff reviewed all submitted materials. My determination, based on Ms. Wyatt's review and recommendation is that the O'Hare Telephone Building and Garage are not eligible for the National Register of Historic Places. This letter explains that determination.

### Overview

The O'Hare Telephone Building and Garage were evaluated by the FAA under all four National Register criteria, but only two merited further analysis: Criterion A and Criterion C. Under Criterion A, the FAA evaluated the significance of the telephone building and associated garage in the areas of transportation and telecommunications (DOE, p. 46). (Note that although the latter is not an area of significance specifically identified in Bulletin 16, *How to Complete the National Register Registration Form*, telecommunications may be considered a subcategory under communications). Under Criterion C, the FAA evaluated the architectural significance of the telephone building and garage.

The following comments discuss the evaluation of the telephone building and garage; note, however, that neither party considered the individual eligibility of the garage.

### Criterion A

**Transportation.** There is no disputing that O'Hare was a busy airport in 1961 and an important transportation hub, but the FAA is correct in stating that the telephone building and garage do not possess significance under Criterion A for their association with broad patterns of transportation history at the airport. Although reliable and rapid ground communication supported the airport's transportation function, the telephone building and garage do not represent transportation history.

**Communications.** Both parties agree the telephone building had state-of-the art equipment installed in 1961; however, the initial installation of mechanical switching equipment was eclipsed four years later by the introduction of electronic switching equipment. Regardless of the property's association with the evolving technology, Bulletin 15, *How to Apply the National Register Criteria for Evaluation*, notes that "mere association with historic events or trends is not enough, in and of itself, to qualify under Criterion A. The property's specific association must be considered important as well" (Bulletin 15, p. 12). The information presented by the FAA does not demonstrate association with a specific event marking an important moment in American history, nor a pattern of events that made a significant contribution to local, state, or national development. Significance under Criterion A in the area of communications, therefore, is not evident.

### Criterion C

The aspects of architectural significance under Criterion C that may be applied to the telephone building are "type, period, or method of construction" or "the work of a master" (Bulletin 15, p. 17). The FAA and ILSHPO differ in their approaches to assessing the telephone building's architectural merits, with ILSHPO focusing on Miesian qualities and the FAA, initially, considering it as representing a genre of building design

**Type, Period, or Method of Construction / Miesian Design.** The FAA maintains that the telephone building is representative of a "common telephone property type throughout the nation"; that it is reflective of "a similar simple form and practical design and layout to house equipment that is found in other Central Office buildings across the country"; and that it "also reflects the design and public perception for the Central Offices that was promoted by AT&T" with "little to no style or architectural ornamentation" (DOE, pp. 46-47). The FAA states that between 1957 and 1961, Bell spent more than \$1 billion in the construction of over 6,000 telephone-related buildings across the country" (*Technical Memorandum*, p. 6). The Keeper concludes that available information does not indicate that the O'Hare Telephone Building is eligible under Criterion C as a type, period, or method of construction

By contrast, ILSHPO finds the telephone building to be representative of Miesian design, which is particularly emblematic of Chicago where some of its finest expressions are found. ILSHPO asserts the telephone building's "lack of overt or applied ornament is exactly in line with the Miesian design philosophy that was used in its design" (December 30, 2019, email from Rubano to Hanson, p. 2). ILSHPO considers the telephone building's design to be consistent with the design of other airport buildings designed by Naess and Murphy at O'Hare and that this is an indication that the design is deliberate, not a matter of universal design characteristics of telephone buildings.

ILSHPO presents sufficient description and analysis for the telephone building to be considered Miesian in its appearance, even if it also happens to embody the utilitarian design favored by AT&T for such buildings. The FAA disputes a finding of Miesian design and presents numerous Chicago examples of truly significant Miesian architecture. The Keeper concludes that the telephone building may be Miesian in design, but it is not a significant local example and not eligible for the National Register under Criterion C for this reason.

**Work of Master.** Buildings nominated as the work of a master "express a particular phase in the development of the master's career, an aspect of his or her work, or a particular idea or theme in his or her craft. . . a property is not eligible, however, simply because it was designed by a prominent architect" (Bulletin 15, p. 20). Attribution to prominent local architect Stan Gladych is not definitive, nor is this design's significance as discussed above eligible for association with Gladych or Naess & Murphy. Independently or together, this individual and this firm may be considered master architects and the telephone building may be *attributed* to them, but the telephone building is not significant simply because it was designed by a master architect (or firm). The Keeper does not find the building eligible under Criterion C as the work of a master.

## Conclusion

Based on an analysis of documentation presented by the FAA and ILSHPO, I concur with the FAA's determination that the O'Hare Telephone Building and Garage are not eligible for listing in the National Register of Historic Places.

If you have any questions, please contact Barbara Wyatt at [barbara\\_wyatt@nps.gov](mailto:barbara_wyatt@nps.gov).

Sincerely,

**JOY BEASLEY**

Digitally signed by JOY BEASLEY  
Date: 2020.05.05 13:37:34  
-04'00'

Joy Beasley  
Acting Associate Director, Cultural Resources,  
Partnerships, and Science  
Keeper of the National Register of Historic Places

Enclosure

cc: Aaron Frame, City of Chicago Department of Aviation  
Jamie Rhee, City of Chicago Department of Aviation  
Carol Wallace, Illinois State Historic Preservation Officer  
Robert Appleman, Illinois Deputy State Historic Preservation Officer

## **Appendix E.     Contact List**



Local Agency	Contact Title	Salutation	Contact Name	Address	City	State	Zip
Chicago Historical Society/Chicago History Museum	President	Mr.	Gary T. Johnson	1601 N Clark St	Chicago	IL	60614
DuPage County Historical Society	Co-President	Ms.	Carol Marcus	PO Box 1460	Wheaton	IL	60187
DuPage County Historical Society	Co-President	Ms.	Margaret Franson Pruter	PO Box 1460	Wheaton	IL	60187
DuPage County Historical Museum	Museum Manager and Educator	Ms.	Michelle Podkova	102 E Wesley St	Wheaton	IL	60187
Norwood Park Historical Society	President	Ms.	Judy Rustemeyer	5624 North Newark Avenue	Chicago	IL	60631
Park Ridge Historical Society	President	Mr.	John Murphy	721 North Prospect Avenue	Park Ridge	IL	60068
Addison Historical Museum/Addison Historical Society	Coordinator	Ms.	Susan English	One Friendship Plaza	Addison	IL	60101
York Township	Supervisor	Mr.	John W. Valle	1502 South Meyers Road	Lombard	IL	60148
Leyden Historical Society				P.O. Box 506	Franklin Park	IL	60131
Elk Grove Historical Society	Coordinator	Ms.	Bokeum Audrey Ko	399 Biesterfield Road	Elk Grove	IL	60007
Maine Township	Supervisor	Ms.	Laura J. Morask	1700 Ballard Rd	Park Ridge	IL	60068
Bensenville Historical Society	Local History Assistant	Ms.	Janis Arquette	200 South Church Road	Bensenville	IL	60106
Department of Planning and Development - Historic Preservation Division	Acting Commissioner	Ms.	Eleanor Gorski	121 N LaSalle St, Room 1000	Chicago	IL	60602
Des Plaines Historical Society & Museum	Executive Director	Mr.	Philip Mohr	781 Pearson Street	Des Plaines	IL	60016
Elk Grove Historical Society	Coordinator	Ms.	Bokeum Audrey Ko	399 Biesterfield Road	Elk Grove	IL	60007
Elmhurst Historical Preservation Commission		Ms.	Charmaine M. Tellfsen	209 N York St	Elmhurst	IL	60126
Elmhurst History Museum	Executive Director	Mr.	Dave Oberg	120 E Park Ave	Elmhurst	IL	60126
City of Elmhurst, IL	City Planner	Ms.	Eileen Franz	209 N York St	Elmhurst	IL	60126
Franklin Park Public Library	Head of Local History	Mr.	Marcin Wrobel	10311 Grand Ave	Franklin Park	IL	60131
Village of Harwood Heights	Village Clerk	Ms.	Marcia Pollowy	7300 W. Wilson	Harwood Heights	IL	60706
Itasca Historical Commission	Chairperson	Mr.	Tom Hatzold	101 North Catalpa Avenue	Itasca	IL	60143
Itasca Park District	Superintendent of Recreation and Facilities	Mr.	Doug Sieder	350 E. Irving Park Road	Itasca	IL	60143

Local Agency	Contact Title	Salutation	Contact Name	Address	City	State	Zip
Melrose Park Historical Society/Melrose Park Public Library				801 North 19th Avenue	Melrose Park	IL	60160
Village of Norridge Historical Museum		Mr.	Brian Gazer	7774 W. Irving Park Road	Norridge	IL	60706
City of Northlake	City Clerk	Ms.	Nancy Pauletto	55 E. North Avenue	Northlake	IL	60164
Park Ridge Historic Preservation Commission	City Planner	Mr.	Jon Branham	505 Butler Place	Park Ridge	IL	60068
River Grove Historical Society	Historic Commission Chair	Mr.	Michael Prokop	2621 N. Thatcher	River Grove	IL	60171
Village of Rosemont	Mayor	Mayor	Bradley A. Stephens	Rosemont Village Hall, 9501 W. Devon Ave.	Rosemont	IL	60018
Schiller Park Historical Commission	Chairman	Mr.	Daniel R. Sliwicki	4200 Old River Road	Schiller Park	IL	60176
Wood Dale Historical Society	Historian	Ms.	Judi Ryan	850 North Wood Dale Road	Wood Dale	IL	60191

## **Appendix F. Off-airport Individual Properties and Historic Districts**

**Off-airport Individual Properties and Historic Districts<sup>1</sup>****Note: The extant status and current function of identified off-airport historic properties and locally important sites will be confirmed if a potential effect is identified**

<b>Name</b>	<b>Street Address</b>	<b>City</b>	<b>Historic Status</b>	<b>Function</b>	<b>Source*</b>
Green Street School	119 E Green St	Bensenville	Determined Eligible for National Register of Historic Places (NRHP)	School	Bensenville Historical Society
Churchville Schoolhouse	3N784 Church Rd	Bensenville	Listed in the NRHP	School	DuPage County Historical Museum & Elmhurst Historical Preservation Commission
Residence	4N030 Church Rd	Bensenville	Locally important site	Single-family residence	EIS
Residence	9 E Pine Ave	Bensenville	Locally important site	Single-family residence	EIS
Residence	110 E Pine Ave	Bensenville	Locally important site	Single-family residence	EIS
Fischer Farm	16W680 Grand Ave	Bensenville	Locally important site	Farm	DuPage County Historical Museum & Bensenville Historical Society
Residence	180 May St	Bensenville	Locally important site	Single-family residence	EIS
Residence	185 May St	Bensenville	Locally important site	Single-family residence	EIS
Unknown	118 N Church Rd	Bensenville	Locally important site	Unknown	HARGIS
Residence	214 Park St	Bensenville	Locally important site	Single-family residence	EIS & HARGIS
Residence	184 Rose St	Bensenville	Locally important site	Single-family residence	Bensenville Historical Society
Residence	185 Rose St	Bensenville	Locally important site	Single-family residence	Bensenville Historical Society
Residence	143 S Addison St	Bensenville	Locally important site	Single-family residence	EIS
Residence	150 S Addison St	Bensenville	Locally important site	Single-family residence	EIS
Residence	168 S Addison St	Bensenville	Locally important site	Single-family residence	EIS
Residence	169 S Addison St	Bensenville	Locally important site	Single-family residence	EIS
Residence	201 S Addison St	Bensenville	Locally important site	Single-family residence	EIS
Janker's Building	202 S Addison St	Bensenville	Locally important site	Commercial	EIS

<sup>1</sup> Two properties included in the 2005 EIS (Historic Tonne House and Farmhouse in Elk Grove) did not have complete address information and the Elk Grove Historical Society does not believe these properties to be extant.

\* EIS = 2005 O'Hare Modernization Program Environmental Impact Statement; HARGIS = Historic Architectural and Archaeology Resources Geographic Information System; CHRS = Chicago Historic Resources Survey; and NRHP = National Register of Historic Places.

\*\* These properties were incorrectly noted to be on Avondale Avenue in Park Ridge.



**Off-airport Individual Properties and Historic Districts<sup>1</sup>****Note: The extant status and current function of identified off-airport historic properties and locally important sites will be confirmed if a potential effect is identified**

<b>Name</b>	<b>Street Address</b>	<b>City</b>	<b>Historic Status</b>	<b>Function</b>	<b>Source*</b>
Residence	437 S Addison St	Bensenville	Locally important site	Single-family residence	EIS & HARGIS
Theatre /stores	9-23 S Center St	Bensenville	Locally important site	Theater	EIS
Residence	145 S Center St	Bensenville	Locally important site	Single-family residence	EIS
Residence	155 S Center St	Bensenville	Locally important site	Single-family residence	EIS
Residence	156 S Center St	Bensenville	Locally important site	Single-family residence	EIS
Residence	160 S Center St	Bensenville	Locally important site	Single-family residence	EIS
Residence	164 S Center St	Bensenville	Locally important site	Single-family residence	EIS & HARGIS
Peace Church Manse/Residential	166 S Center St (address in EIS was incorrect as 168 S Center St)	Bensenville	Locally important site	Single-family residence	EIS
Residence	181 S Center St	Bensenville	Locally important site	Single-family residence	EIS
Peace Church	192 S Center St	Bensenville	Locally important site	Church	EIS
Residence	202 S Center St	Bensenville	Locally important site	Single-family residence	EIS
Residence	206 S Center St	Bensenville	Locally important site	Single-family residence	EIS
Residence	240 S Center St	Bensenville	Locally important site	Single-family residence	EIS & HARGIS
Residence	244 S Center St	Bensenville	Locally important site	Single-family residence	EIS
Zion Lutheran Church	865 S Church Rd	Bensenville	Locally important site	Church	DuPage County Historical Museum
Residence	138 S Mason St	Bensenville	Locally important site	Single-family residence	EIS
Residence	141 S Mason St	Bensenville	Locally important site	Single-family residence	EIS
Residence	145 S Mason St	Bensenville	Locally important site	Single-family residence	EIS
Residence	146 S Mason St	Bensenville	Locally important site	Single-family residence	EIS
Residence	158 S Mason St	Bensenville	Locally important site	Single-family residence	EIS
Residence	166 S Mason St	Bensenville	Locally important site	Single-family residence	EIS
Residence	169 S Mason St	Bensenville	Locally important site	Single-family residence	EIS
Residence	172 S Mason St	Bensenville	Locally important site	Single-family residence	EIS
Residence	173 S Mason St	Bensenville	Locally important site	Single-family residence	EIS
Residence	175 S Mason St	Bensenville	Locally important site	Single-family residence	EIS
Residence	180 S Mason St	Bensenville	Locally important site	Single-family residence	EIS
Residence	196 S Mason St	Bensenville	Locally important site	Single-family residence	EIS
Residence	201 S Mason St	Bensenville	Locally important site	Single-family residence	EIS
Residence	176 S Walnut St	Bensenville	Locally important site	Single-family residence	EIS
Residence	188 S Walnut St	Bensenville	Locally important site	Single-family residence	EIS

**Off-airport Individual Properties and Historic Districts<sup>1</sup>****Note: The extant status and current function of identified off-airport historic properties and locally important sites will be confirmed if a potential effect is identified**

<b>Name</b>	<b>Street Address</b>	<b>City</b>	<b>Historic Status</b>	<b>Function</b>	<b>Source*</b>
Residence	196 S Walnut St	Bensenville	Locally important site	Single-family residence	EIS
Residence	14 S York Rd	Bensenville	Locally important site	Single-family residence	EIS & HARGIS
Residence	158 S York Rd	Bensenville	Locally important site	Single-family residence	EIS
Residence	165 S York Rd	Bensenville	Locally important site	Single-family residence	EIS & HARGIS
Residence	180 S York Rd	Bensenville	Locally important site	Single-family residence	EIS
Residence	181 S York Rd	Bensenville	Locally important site	Single-family residence	EIS
Residence	192 S York Rd	Bensenville	Locally important site	Single-family residence	EIS
Residence	217 S York Rd	Bensenville	Locally important site	Single-family residence	EIS
Professional Center	100 W Green St	Bensenville	Locally important site	Commercial	EIS
Residence	301 W Green St	Bensenville	Locally important site	Single-family residence	EIS
Residence	309 W Green St	Bensenville	Locally important site	Single-family residence	EIS
Residence	313 W Green St	Bensenville	Locally important site	Single-family residence	EIS
Residence	317 W Green St	Bensenville	Locally important site	Single-family residence	EIS
Residence	507 W Green St	Bensenville	Locally important site	Single-family residence	EIS
Residence	517 W Green St	Bensenville	Locally important site	Single-family residence	EIS
Korthauer Log House	714 W Wood St	Bensenville	Locally important site	Single Family Residence	DuPage County Historical Museum & IHPA DuPage County Landmark; DuPage County Cultural & Historical Inventory
Forest Preserve Garage	8800 W Belmont Ave	Chicago	Locally important site	Garage	CHRS
Norwood Park Historical District	Bordered by Avondale Ave to the north, Nagle Ave to the east, Bryn Mawr to the south, and Harlem Ave to the west	Chicago	Listed in the NRHP	Historic District	HARGIS
Unknown	6625 N Avondale Ave	Chicago	Locally important site	Unknown	CHRS
Bridge over JFK Expressway (I-90) carrying Canfield Avenue	5743 N Canfield Ave	Chicago	Determined Eligible for NRHP	Bridge	HARGIS
Wingert House	6231 N Canfield Ave	Chicago	Listed in the NRHP	Single Family Residence	National Register of Historic Places (NRHP)

**Off-airport Individual Properties and Historic Districts<sup>1</sup>****Note: The extant status and current function of identified off-airport historic properties and locally important sites will be confirmed if a potential effect is identified**

<b>Name</b>	<b>Street Address</b>	<b>City</b>	<b>Historic Status</b>	<b>Function</b>	<b>Source*</b>
Passionist Fathers Monastery	5700 N Harlem Ave	Chicago	Listed in the NRHP	Religious property	CHRS
Residence	5700-5708 N Natoma Ave	Chicago	Locally important site	Single-family residence	CHRS
Unknown	5228 N New England Ave	Chicago	Locally important site	Unknown	HARGIS
Residence	5232 N New England Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	5661 N New Hampshire Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	5650-5666 N New Hampshire Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	5669 N New Hampshire Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	5673 N New Hampshire Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	5678 N New Hampshire Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	5682 N New Hampshire Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	5681-5683 N New Hampshire Ave (house only at 5681 N New Hampshire Ave)	Chicago	Locally important site	Single-family residence	CHRS
Residence	5685 N New Hampshire Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	5688 N New Hampshire Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	5692 N New Hampshire Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	5693 N New Hampshire Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	5691-5697 N New Hampshire Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	5617 N Newark Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	5623 N Newark Ave	Chicago	Locally important site	Single-family residence	CHRS
Noble-Seymour-Crippen House	5624 N Newark Ave	Chicago	Listed in the NRHP	Single-family residence	CHRS
Residence	5627 N Newark Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	5642 N Newark Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	5647 N Newark Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	5653 N Newark Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	5656 N Newark Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	5659 N Newark Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	5662 N Newark Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	5667 N Newark Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	5627-5631 N Newcastle Ave	Chicago	Locally important site	Single-family residence	CHRS

**Off-airport Individual Properties and Historic Districts<sup>1</sup>****Note: The extant status and current function of identified off-airport historic properties and locally important sites will be confirmed if a potential effect is identified**

<b>Name</b>	<b>Street Address</b>	<b>City</b>	<b>Historic Status</b>	<b>Function</b>	<b>Source*</b>
Residence	5637 N Newcastle Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	5647 N Newcastle Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	5655 N Newcastle Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	5667 N Newcastle Ave	Chicago	Locally important site	Single-family residence	CHRS
Chicago & North Western Railroad Depot	6089 N Northwest Hwy	Chicago	Listed in the NRHP individually and as part of the Norwood Park Historic District	Depot	NRHP & HARGIS
Unknown	6626 N Northwest Hwy	Chicago	Locally important site	Unknown	CHRS
Mixed use - commercial/residential	6714-6718 N Northwest Hwy	Chicago	Locally important site	Commercial/Residential	CHRS & HARGIS
Residence	6134 N Olcott Ave	Chicago	Locally important site	Single-family residence	CHRS
Unknown	6200-6222 N Olcott Ave	Chicago	Locally important site	Unknown	CHRS
Residence	6554 N Oliphant Ave	Chicago	Locally important site	Single-family residence	CHRS
Unknown	6438 N Oxford Ave	Chicago	Locally important site	Unknown	CHRS
Residence	6453 N Oxford Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	6454 N Oxford Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	6456 N Oxford Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	720 S Lincoln Ave	Chicago	Locally important site	Single Family Residence	Park Ridge Historical Society
Residence	6800 W Hobart Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	6803 W Hobart Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	6804 W Hobart Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	6813 W Hobart Ave (6915 W Hobart Ave, in CHRS but there as there is no 6815 –included 6813 and 6819 Hobart)	Chicago	Locally important site	Single-family residence	CHRS
Residence	6819 W Hobart Ave (6815 W Hobart in CHRS but no 6815 including both 6813 and 6819.	Chicago	Locally important site	Single-family residence	CHRS
Residence	6822 W Hobart Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	6826 W Hobart Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	6829 W Hobart Ave	Chicago	Locally important site	Single-family residence	CHRS



**Off-airport Individual Properties and Historic Districts<sup>1</sup>****Note: The extant status and current function of identified off-airport historic properties and locally important sites will be confirmed if a potential effect is identified**

<b>Name</b>	<b>Street Address</b>	<b>City</b>	<b>Historic Status</b>	<b>Function</b>	<b>Source*</b>
Residence	6833 W Hobart Ave	Chicago	Locally important site	Single-family residence	CHRS
Multi-family residence	6836 W Hobart Ave	Chicago	Locally important site	Multi-family residence	CHRS
Residence	6843-6845 W Hobart Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	6852 W Hobart Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	6865 W Hobart Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	6883 W Hobart Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	6905 W Hobart Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	6915 W Hobart Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	6921 W Hobart Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	6925 W Hobart Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	6932 W Hobart Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	6936-6938 W Hobart Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	6949 W Hobart Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	6953 W Hobart Ave	Chicago	Locally important site	Single-family residence	CHRS
Residence	6721 W Hurlbut St	Chicago	Locally important site	Single-family residence	CHRS
Residence	6727 W Hurlbut St	Chicago	Locally important site	Single-family residence	CHRS
Residence	6732 W Hurlbut St	Chicago	Locally important site	Single-family residence	CHRS
Danish Old People's Home	N. Newcastle Ave 5656 (address in CHRS is 6809 Hurlburt)	Chicago	Locally important site	Institutional	CHRS
Chicago-Read Mental Health Center	4200 N. Oak Park Avenue (in 2005 EIS as 6810 W. Irving Park Rd)	Chicago	Locally important site	Medical campus	HARGIS
Residence	7327 W Myrtle Ave	Chicago	Locally important site	Single-family residence	CHRS
Elk Grove Park District Farmhouse Museum	399 Biesterfeld Rd	Elk Grove	Locally important site	Farm/Museum (current)	EIS
Fischer Windmill at Mt. Emblem Cemetery	520 E Grand Ave	Elmhurst	Locally important site	Windmill	DuPage County Historical Museum & Elmhurst Historical Preservation Commission
Unknown	3234 25th Ave	Franklin Park	Locally important site	Unknown	HARGIS

**Off-airport Individual Properties and Historic Districts<sup>1</sup>****Note: The extant status and current function of identified off-airport historic properties and locally important sites will be confirmed if a potential effect is identified**

<b>Name</b>	<b>Street Address</b>	<b>City</b>	<b>Historic Status</b>	<b>Function</b>	<b>Source*</b>
Unknown	3238 25th Ave	Franklin Park	Locally important site	Unknown	HARGIS
Kirchhoff, Henry, House	10067 Franklin Ave	Franklin Park	Locally important site	Single-family residence	HARGIS
Victor Fluid Power	3412 River Rd	Franklin Park	Locally important site	Commercial	HARGIS
Durocraft Homes Historic District	Roughly bound by W Foster Ave and W Gunnison Street on the north, N Narragansett on the east, W Montrose Ave on the south and W Overhill Ave on the west	Harwood Heights	Locally important site	Historic District	EIS
Historical Depot Museum	101 Catalpa Ave	Itasca	Locally important site	Depot/Museum (current)	Itasca Historical Society & Museum
Unknown	226 N Elm St	Itasca	Locally important site	Unknown	HARGIS
Second School, Apartments	311 N Elm St	Itasca	Locally important site	Multi-family residence	Itasca Historical Society & Museum
Unknown	209 N Walnut Ave	Itasca	Locally important site	Unknown	HARGIS
Doctor's Memorial	217 N Walnut Ave	Itasca	Locally important site	Memorial	HARGIS
Unknown	105 S Maple St	Itasca	Locally important site	Unknown	HARGIS
Unknown	126 S Maple St	Itasca	Locally important site	Unknown	HARGIS
Unknown	118 S Walnut Ave	Itasca	Locally important site	Unknown	HARGIS
Unknown	126 S Walnut Ave	Itasca	Locally important site	Unknown	HARGIS
Itasca Baptist Church	210 S Walnut Ave	Itasca	Locally important site	Church	HARGIS and Itasca Historical Society & Museum
Unknown	101 W Orchard St	Itasca	Locally important site	Unknown	HARGIS
Unknown	111 W Orchard St	Itasca	Locally important site	Unknown	HARGIS
Unknown	115 W Orchard St	Itasca	Locally important site	Unknown	HARGIS
Unknown	125 W Orchard St	Itasca	Locally important site	Unknown	HARGIS
Helen Unseth House	808 Park Plaine Ave	Park Ridge	Locally important site	Single-family residence	Park Ridge Historical Society
Residence	225 Lake Ave**	Park Ridge	Locally important site	Single-family residence	EIS & Park Ridge Historical Society
Residence	234 Lake Ave**	Park Ridge	Locally important site	Single-family residence	EIS & Park Ridge Historical Society

**Off-airport Individual Properties and Historic Districts<sup>1</sup>****Note: The extant status and current function of identified off-airport historic properties and locally important sites will be confirmed if a potential effect is identified**

<b>Name</b>	<b>Street Address</b>	<b>City</b>	<b>Historic Status</b>	<b>Function</b>	<b>Source*</b>
Residence	244 Lake Ave**	Park Ridge	Locally important site	Single-family residence	EIS & Park Ridge Historical Society
Residence	231 Belle Plaine Ave	Park Ridge	Locally important site	Single-family residence	EIS
Residence	916 Cleveland Ave	Park Ridge	Locally important site	Single-family residence	Park Ridge Historical Society
Residence	202 Columbia Ave	Park Ridge	Locally important site	Single-family residence	EIS & HARGIS
Residence	203 Columbia Ave	Park Ridge	Locally important site	Single-family residence	EIS & HARGIS
Unknown	218 Courtland Ave	Park Ridge	Locally important site	Unknown	HARGIS
Residence	321 Courtland Ave	Park Ridge	Locally important site	Single-family residence	EIS
Residence	411 Courtland Ave	Park Ridge	Locally important site	Single-family residence	Park Ridge Historical Society
Residence	412 Courtland Ave	Park Ridge	Locally important site	Single-family residence	EIS & HARGIS
Residence	421 Courtland Ave	Park Ridge	Locally important site	Single-family residence	EIS & HARGIS
Residence	524 Courtland Ave	Park Ridge	Locally important site	Single-family residence	Park Ridge Historical Society
Residence	708 Courtland Ave	Park Ridge	Locally important site	Single-family residence	EIS & HARGIS
Residence	840 Courtland Ave (EIS address of 842 Courtland Ave updated)	Park Ridge	Locally important site	Single-family residence	EIS & HARGIS
Residence	908 Courtland Ave	Park Ridge	Locally important site	Single-family residence	EIS & HARGIS
Residence	1429 Courtland Ave	Park Ridge	Locally important site	Single-family residence	EIS & HARGIS
Residence	1439 Courtland Ave	Park Ridge	Locally important site	Single-family residence	EIS & HARGIS
Unknown	945 Florence Dr	Park Ridge	Locally important site	Unknown	HARGIS
Clue House	720 Garden St	Park Ridge	Locally important site	Single Family Residence	Park Ridge Historical Society
Residence	1113 Garden St	Park Ridge	Locally important site	Single-family residence	Park Ridge Historical Society
Residence	1105 Harrison St	Park Ridge	Locally important site	Single-family residence	Park Ridge Historical Society
Residence	211 Lake Ave**	Park Ridge	Locally important site	Single-family residence	EIS & Park Ridge Historical Society
Residence	228 Lake Ave**	Park Ridge	Locally important site	Single-family residence	EIS & Park Ridge Historical Society

**Off-airport Individual Properties and Historic Districts<sup>1</sup>****Note: The extant status and current function of identified off-airport historic properties and locally important sites will be confirmed if a potential effect is identified**

<b>Name</b>	<b>Street Address</b>	<b>City</b>	<b>Historic Status</b>	<b>Function</b>	<b>Source*</b>
Residence	328 Lake Ave	Park Ridge	Locally important site	Single-family residence	Park Ridge Historical Society
Residence	122 N Delphia Ave	Park Ridge	Locally important site	Single Family Residence	Park Ridge Historical Society
Residence	241 N Greenwood Ave	Park Ridge	Locally important site	Single-family residence	Park Ridge Historical Society
Residence	15 N Knight Ave	Park Ridge	Locally important site	Single-family residence	Park Ridge Historical Society
Residence	202 N Lincoln Ave	Park Ridge	Locally important site	Single-family residence	Park Ridge Historical Society
Commercial	616 Devon (North side of Devon between Prospect and Talcott Rd)	Park Ridge	Locally important site	Commercial	EIS
Residence	317 Oak St	Park Ridge	Locally important site	Single-family residence	Park Ridge Historical Society
Hodges House	325 Oak St	Park Ridge	Locally important site	Single-family residence	EIS and HARGIS
Residence	704 Parkwood Ave	Park Ridge	Locally important site	Single-family residence	Park Ridge Historical Society
Residence	928 Prairie Ave	Park Ridge	Locally important site	Single-family residence	Park Ridge Historical Society
Residence	1003 Prairie Ave	Park Ridge	Locally important site	Single-family residence	Park Ridge Historical Society
Residence	600 S Clifton Ave	Park Ridge	Locally important site	Single-family residence	EIS & HARGIS
Residence	321 S Crescent Ave	Park Ridge	Locally important site	Single-family residence	EIS & HARGIS
Residence	322 S Crescent Ave	Park Ridge	Locally important site	Single-family residence	Park Ridge Historical Society
Residence	325 S Crescent Ave	Park Ridge	Locally important site	Single-family residence	EIS
Residence	333 S Crescent Ave	Park Ridge	Locally important site	Single-family residence	EIS & HARGIS
Residence	413 S Crescent Ave	Park Ridge	Locally important site	Single-family residence	EIS
Residence	432 S Crescent Ave	Park Ridge	Locally important site	Single-family residence	Park Ridge Historical Society
Residence	505 S Crescent Ave	Park Ridge	Locally important site	Single-family residence	EIS & Park Ridge Historical Society
Residence	506 S Crescent Ave	Park Ridge	Locally important site	Single-family residence	EIS
Residence	601 S Crescent Ave	Park Ridge	Locally important site	Single-family residence	EIS



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<b>Name</b>	<b>Street Address</b>	<b>City</b>	<b>Historic Status</b>	<b>Function</b>	<b>Source*</b>
Residence	823 S Crescent Ave	Park Ridge	Locally important site	Single-family residence	EIS
Residence	925 S Crescent Ave	Park Ridge	Locally important site	Single-family residence	EIS
Residence	1433 S Crescent Ave	Park Ridge	Locally important site	Single-family residence	EIS & HARGIS
Residence	315 S Cumberland Ave	Park Ridge	Locally important site	Single-family residence	EIS & HARGIS
Residence	401 S Cumberland Ave	Park Ridge	Locally important site	Single-family residence	EIS
Residence	424 S Cumberland Ave	Park Ridge	Locally important site	Single-family residence	Park Ridge Historical Society
Residence	431 S Cumberland Ave	Park Ridge	Locally important site	Single-family residence	Park Ridge Historical Society
Unknown	224 S Fairview Ave	Park Ridge	Locally important site	Unknown	HARGIS
Residence	309 S Fairview Ave	Park Ridge	Locally important site	Single-family residence	Park Ridge Historical Society
Residence	316 S Fairview Ave	Park Ridge	Locally important site	Single-family residence	EIS & HARGIS
Residence	321 S Fairview Ave	Park Ridge	Locally important site	Single-family residence	Park Ridge Historical Society
Residence	400 S Fairview Ave	Park Ridge	Locally important site	Single-family residence	EIS & HARGIS
Residence	404 S Fairview Ave	Park Ridge	Locally important site	Single-family residence	EIS & HARGIS
Residence	413 S Fairview Ave	Park Ridge	Locally important site	Single-family residence	EIS & HARGIS
Residence	420 S Fairview Ave	Park Ridge	Locally important site	Single-family residence	Park Ridge Historical Society
Residence	602 S Fairview Ave	Park Ridge	Locally important site	Single-family residence	EIS & HARGIS
Residence	24 S Greenwood Ave	Park Ridge	Locally important site	Single-family residence	Park Ridge Historical Society
Residence	100 S Greenwood Ave	Park Ridge	Locally important site	Single-family residence	Park Ridge Historical Society
Pickwick Theater Building	5 S Prospect Ave	Park Ridge	Listed in the NRHP	Theater	HARGIS and Park Ridge Historical Society
Commercial	S Prospect Ave (in EIS as 15-19 S Prospect Ave – updated address)	Park Ridge	Locally important site	Commercial	EIS & HARGIS
Park Ridge Post Office	164 S Prospect Ave	Park Ridge	Locally important site	Post Office	HARGIS

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<b>Name</b>	<b>Street Address</b>	<b>City</b>	<b>Historic Status</b>	<b>Function</b>	<b>Source*</b>
Residence	316 S Prospect Ave	Park Ridge	Locally important site	Single-family residence	EIS & HARGIS
Residence	412 S Prospect Ave	Park Ridge	Locally important site	Single-family residence	EIS & HARGIS
Residence	413 S Prospect Ave	Park Ridge	Locally important site	Single-family residence	EIS & HARGIS
Residence	500 S Prospect Ave	Park Ridge	Locally important site	Single-family residence	EIS & HARGIS
Residence	601 S Prospect Ave	Park Ridge	Locally important site	Single-family residence	EIS & HARGIS
Residence	715 S Prospect Ave	Park Ridge	Locally important site	Single-family residence	EIS & HARGIS
Residence	718 S Prospect Ave	Park Ridge	Locally important site	Single-family residence	Park Ridge Historical Society
Residence	1521 S Prospect Ave	Park Ridge	Locally important site	Single-family residence	EIS & HARGIS
Residence	506 S Western Ave	Park Ridge	Locally important site	Single-family residence	Park Ridge Historical Society
Residence	228 Stanley Ave	Park Ridge	Locally important site	Single-family residence	Park Ridge Historical Society
Unknown	203 Vine Ave	Park Ridge	Locally important site	Unknown	HARGIS
Residence	225 Vine Ave	Park Ridge	Locally important site	Single-family residence	Park Ridge Historical Society
Unknown	230 Vine Ave	Park Ridge	Locally important site	Unknown	HARGIS
Residence	332 Vine Ave	Park Ridge	Locally important site	Single-family residence	EIS & HARGIS
Residence	404 Vine Ave	Park Ridge	Locally important site	Single-family residence	EIS & HARGIS
Residence	514 Vine Ave	Park Ridge	Locally important site	Single-family residence	EIS & HARGIS
Residence	1000 W Crescent Ave	Park Ridge	Locally important site	Single-family residence	EIS & HARGIS
Residence	424 W Talcott Place (EIS address of 422, 424 and 428 Talcott Rd updated)	Park Ridge	Locally important site	Single-family residence	EIS & Park Ridge Historical Society
Residence	1305 S Crescent (EIS W Talcott Rd updated) address of 429	Park Ridge	Locally important site	Single-family residence	EIS & HARGIS
Residence	430 W Talcott Place (EIS address of Talcott Rd updated)	Park Ridge	Locally important site	Single-family residence	EIS & HARGIS
Town of Maine Cemetery	2101 W Touhy Ave	Park Ridge	Locally important site	Cemetery	Park Ridge Historical Society

**Off-airport Individual Properties and Historic Districts<sup>1</sup>****Note: The extant status and current function of identified off-airport historic properties and locally important sites will be confirmed if a potential effect is identified**

<b>Name</b>	<b>Street Address</b>	<b>City</b>	<b>Historic Status</b>	<b>Function</b>	<b>Source*</b>
20 Corner Store	4851 Michigan Ave	Schiller Park	Locally important site	Single-family residence	EIS
21 Siemer's Home	4262 Ruby St	Schiller Park	Locally important site	Single-family residence	EIS
Residence	174 Harvey Ave	Wood Dale	Locally important site	Single-family residence	EIS & HARGIS
Residence	262 N Hemlock Ave	Wood Dale	Locally important site	Single-family residence	EIS & HARGIS

**From:** [Hanson, Amy \(FAA\)](#)  
**To:** [Wallace, Carol](#)  
**Cc:** [Christina Slattery](#); [Amy Squitieri](#); [dwasiuk@hmmh.com](mailto:dwasiuk@hmmh.com); [Brandon L. Robinette](#); [vigilante1@msn.com](mailto:vigilante1@msn.com); [Mary Ellen Eagan](#); [ORDTAP](#); [Aaron Frame](#); [Jamie Rhee](#); [Bartell, Deb \(FAA\)](#); [Hines, Gregory \(FAA\)](#); [Robert Hoxie](#); [Young, LaDonna](#); [Rubano, Anthony](#)  
**Subject:** Architecture/History Survey Report for Terminal Area Plan and Air Traffic Actions Environmental Assessment  
**Date:** Thursday, April 29, 2021 10:10:47 AM  
**Attachments:** [TAP and AT EA APEandArchHistSurveyReport cover letter 20210429.pdf.pdf](#)  
[TAP and AT EA APEandArchHistSurveyReport 20210427.pdf](#)

---

CJ –

As we discussed yesterday, attached is the *Architecture/History Survey Report for Terminal Area Plan and Air Traffic Actions Environmental Assessment*. Per your direction, I am directly submitting it to you instead of using the online submittal system. Please let me know if you or your staff would like to discuss the materials prior to your response.

Thank you.

Amy B. Hanson

Environmental Protection Specialist

Chicago Airports District Office

Federal Aviation Administration

Office: 847-294-7354

Cell: 847-571-3425





## Illinois Department of Natural Resources

One Natural Resources Way Springfield, Illinois 62702-1271

[www.dnr.illinois.gov](http://www.dnr.illinois.gov)

Mailing Address: 1 Old State Capitol Plaza, Springfield, IL 62701

JB Pritzker, Governor

Colleen Callahan, Director

Cook County

Chicago

Terminal Area Plan and Air Traffic Actions Environmental Assessment at Chicago O'Hare International Airport

10000 W. O'Hare Ave.

SHPO Log #003042921

May 14, 2021

Amy Hanson

U.S. Department of Transportation

Federal Aviation Administration

Chicago Airports District Office

2300 E. Devon Ave., Suite 201

Des Plaines, IL 60018

Dear Ms. Hanson:

Thank you for your April 29, 2021 submission asking for our concurrence with the Federal Aviation Administration's (FAA) documentation of the Area of Potential Effects (APE) and identification of historic properties for the described project.

We concur with the APE. We concur with the FAA that the properties identified in the Architecture/History Survey Report are eligible for the National Register of Historic Places. However, we acknowledge that, all off-airport property resources within the APE were not evaluated for National Register of Historic Places eligibility, as indicated on pg. 21 ("The remaining locally important sites in Appendix F have not been evaluated to determine their eligibility for listing in the National Register"). We do not find it necessary to survey resources outside of airport property but within the APE because of the low likelihood of direct or indirect adverse effects to those resources. We accept the report as submitted and look forward to continued consultation.

Please contact CJ Wallace, Cultural Resources Coordinator, at 217/785-5027 or at [Carol.Wallace@illinois.gov](mailto:Carol.Wallace@illinois.gov) with any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert F. Appleman".

Robert F. Appleman

Deputy State Historic

Preservation Officer

## **ATTACHMENT G-2**

### **DETERMINATIONS OF ELIGIBILITY AND STATE HISTORIC PRESERVATION OFFICE CORRESPONDENCE (NOTE: EACH ATTACHMENT BEGINS WITH STATE HISTORIC PRESERVATION OFFICE CORRESPONDENCE FOLLOWED BY THE FULL DETERMINATION OF ELIGIBILITY)**

- G-2.1. Terminal 1
- G-2.2. Terminal 1 Reevaluation
- G-2.3. Rotunda
- G-2.4. CDA Control Tower
- G-2.5. Terminal 2
- G-2.6. Terminal 3
- G-2.7. Heating & Refrigeration Building
- G-2.8. Telephone Building and Garage
- G-2.9. Telephone Building Technical Memorandum

### **G-2.1. Terminal 1**



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

Great Lakes Region  
Illinois, Indiana, Michigan,  
Minnesota, North Dakota,  
Ohio, South Dakota,  
Wisconsin

Chicago Airports District Office  
2300 East Devon Avenue  
Des Plaines, Illinois 60018

September 10, 2019

Mr. Anthony Rubano  
Acting Cultural Resources Coordinator  
State Historic Preservation Office  
IDNR – One Natural Resources Way  
Springfield, IL 62702-1271

Mr. Rubano:

Enclosed you will find a copy of a document entitled, *Determination of Eligibility: Terminal 1, Chicago O'Hare International Airport*. We request that you review the Federal Aviation Administration document to determine if you concur that Terminal 1 is eligible for listing on the National Register of Historic Places under Criterion C and Criterion G.

If you have any questions, please feel free to call me at (847) 294-7354.

Sincerely,

Amy B. Hanson  
Environmental Protection Specialist  
Chicago Airports District Office  
Federal Aviation Administration

Cc: Aaron Frame; City of Chicago Department of Aviation  
Jamie Rhee, City of Chicago Department of Aviation





# Illinois Department of Natural Resources

One Natural Resources Way Springfield, Illinois 62702-1271  
www.dnr.illinois.gov

Mailing Address: 1 Old State Capitol Plaza, Springfield, IL 62701

JB Pritzker, Governor  
Colleen Callahan, Director

FAX (217) 524-7525

Cook County

Chicago

National Register Eligibility, Terminal 1 at O'Hare International Airport

Terminal 1 - 10000 W. O'Hare Ave.

SHPO Log #001091219

September 12, 2019

Amy Hanson

U.S. Department of Transportation

Federal Aviation Administration

Chicago Airports District Office

2300 E. Devon Ave., Suite 201

Des Plaines, IL 60018

Dear Ms. Hanson:

Thank you for requesting comments from our office concerning the possible effects of your project on cultural resources. Our comments are required by Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations, 36 CFR 800: "Protection of Historic Properties".

In our opinion, this property meets Criterion "C" with Criterion consideration "G" at the national level of significance for the National Register of Historic Places.

If you have any questions, please call 217/782-4836.

Sincerely,

Robert F. Appleman  
Deputy State Historic  
Preservation Officer

c: Aaron Frame, Deputy Commissioner, Chicago Department of Aviation  
Jamie Rhee, Commissioner, Chicago Department of Aviation



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

Great Lakes Region  
Illinois, Indiana, Michigan,  
Minnesota, North Dakota,  
Ohio, South Dakota,  
Wisconsin

Chicago Airports District Office  
2300 East Devon Avenue  
Des Plaines, Illinois 60018

February 5, 2020

Mr. Brandon Fair  
Managing Director  
Planning and Development  
Corporate Real Estate  
United Airlines  
233 S. Wacker Dr.  
Chicago, IL 60606

Dear Mr. Fair:

The City of Chicago Department of Aviation, the owner and operator of the Chicago O'Hare International Airport, is requesting the FAA approve a proposed United Airlines international lounge expansion near Gate C10.

The FAA received your comments on a draft version of the document entitled, *Determination of Eligibility: Terminal 1, Chicago O'Hare International Airport*, provided to you by the City of Chicago Department of Aviation. The FAA reviewed your comments and retains the determination that Terminal 1, including Concourses B and C, is eligible for listing on the National Register of Historic Places.

The FAA also received your comments on the document entitled, *Finding of No Adverse Effect: Terminal 1, Chicago O'Hare International Airport*. We accept your concurrence on the FAA's determination of no adverse effect for the proposed United Airlines international lounge expansion near Gate C10.

If you have any questions, please feel free to call me at (847) 294-7354.

Sincerely,

Amy B. Hanson  
Environmental Protection Specialist  
Chicago Airports District Office  
Federal Aviation Administration

cc: Jamie Rhee, City of Chicago Department of Aviation  
Rita Baker, State Historic Preservation Office

# **Determination of Eligibility: Terminal 1**

## **Chicago O'Hare International Airport**

Prepared for the  
**Federal Aviation Administration**

Prepared by



[www.meadhunt.com](http://www.meadhunt.com)

August 2019

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## Executive Summary

The historical evaluation of Terminal 1 at O'Hare International Airport (O'Hare, or "the airport") supports Federal Aviation Administration (FAA) requirements for compliance with the National Environmental Policy Act (NEPA) and Section 106 regulations issued pursuant to the National Historic Preservation Act (NHPA), as amended (36 CFR Part 800). As part of its review of the City of Chicago's proposed Airport Layout Plan modification, FAA is conducting a NEPA process for the proposed expansion of Terminal 1 to accommodate the United Airlines international lounge expansion near Gate C10. The Terminal 1 NEPA review is being conducted independently from the environmental process for the proposed Terminal Area Plan. FAA engaged Mead & Hunt, Inc. (Mead & Hunt), through a third-party contract, to complete the evaluation of Terminal 1 in April 2019.

In the development of the 2005 Environmental Impact Statement (EIS), the FAA completed an individual National Register of Historic Places (National Register) evaluation for Terminal 1 with the results presented in the *Draft Architectural Investigation and Determinations of Eligibility for On-Airport Properties* report (May 20, 2005). In the 2005 EIS the FAA recommended that Terminal 1 was significant and potentially eligible for the National Register, meeting the requirements of *Criteria Consideration G for Properties that Achieved Significance Within the Past Fifty Years*. Following the 2005 EIS and receipt of additional information, the State Historic Preservation Office (SHPO) disagreed with the FAA's opinion that Terminal 1 was eligible and provided the FAA with National Register guidance on the application of *Criteria Consideration G*. The FAA considered the additional information and subsequently, in August 2005, determined that Terminal 1 was not, at that time, eligible for listing in the National Register. Since the determination of eligibility was completed over 13 years ago, the FAA requested that Terminal 1 be reevaluated to identify if it currently meets eligibility requirements for listing in the National Register.

Terminal 1 consists of ticketing and baggage areas attached to a primary concourse, Concourse B, and a satellite concourse, Concourse C. The concourses are characterized by barrel-vaulted exterior curtain walls and interior exposed steel structures. The two concourses are connected by an underground tunnel. The terminal complex comprises a total of 1.4 million square feet and houses the United Airlines hub. The terminal was designed by Chicago-based architect Helmut Jahn and constructed between 1986 and 1988. Its postmodern design references London's Victorian-era Crystal Palace as well as historic rail stations that served as city gateways, making the experience of leaving or entering cities memorable for travelers.

Terminal 1 is recommended eligible for listing in the National Register under *Criterion C* in the area of *Architecture* as it embodies the characteristics of a type, period, or method of construction; represents the work of a master; and possesses high artistic value. Terminal 1 embodies significant characteristics of an airport terminal of the postmodern era, representing this distinctive property type. Terminal 1 represents a shift away from the decentralized and utilitarian terminals of the 1970s towards a return to airport buildings as grand statements. Helmut Jahn's work clearly stands out among other architects practicing in the late twentieth century. Terminal 1 stands as Jahn's first work of aviation architecture, receiving broad critical acclaim both at the time of construction and retrospectively. As a result, Terminal 1 can be classified as the work of a master. Terminal 1 also represents high artistic value seen in the intricate arrangement of its steel and glass building materials, which were employed by Jahn to create a "grand

gateway” to Chicago. The connecting tunnel offers a complete spatial artistic statement that is distinct among American airports.

Terminal 1, completed in 1988, is less than 50 years old. However, as detailed above, it exhibits exceptional importance and meets National Register *Criteria Consideration G* as a prominent and influential example of a postmodern airport terminal, as one of the most widely praised works of Helmut Jahn’s career, and for the high artistic value of its steel and glass design and the dynamic artistic space of the connecting tunnel. Overall, Terminal 1 retains strong historic integrity in all aspects and has not undergone significant alterations that would affect its eligibility for listing in the National Register.<sup>1</sup>

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<sup>1</sup> As part of the research for this Determination of Eligibility, numerous attempts to contact Jahn’s Chicago office were unsuccessful.

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## 1. Description

### A. Overall setting and context

Located in northeastern Illinois, Chicago O'Hare International Airport (ORD, also referred to as "O'Hare" or "the airport") occupies an approximately 8,200-acre site that straddles the Cook/DuPage County line to include areas within the city limits of Chicago, Des Plaines, Schiller Park, and Rosemont. The airport is sited approximately 17 miles northwest of Chicago's Central Business District and a variety of light industrial, commercial, residential, and public land uses surround the airport property. The airport itself consists of a central group of terminals (Terminals 1, 2, 3, and 5) encircled by taxiways and surrounded by runways (see Figure 1). Cargo facilities are located at southeast, southwest, and northeast portions of the airport. The general aviation facility is in the northeast of the airport, and fuel storage facilities are located at the northwest corner. Public surface parking areas are located along the central and northeast portions of the airport. The Federal Aviation Administration (FAA) North Control Tower is located in the northwest corner of the property, while the FAA South Control Tower is located in the cargo facilities area on the southwest side of the airport. Other support facilities in the areas on the south, northwest, and northeast portions of the property include those for airline support and maintenance, aircraft rescue and firefighting, a post office, and Transportation Security Administration (TSA).

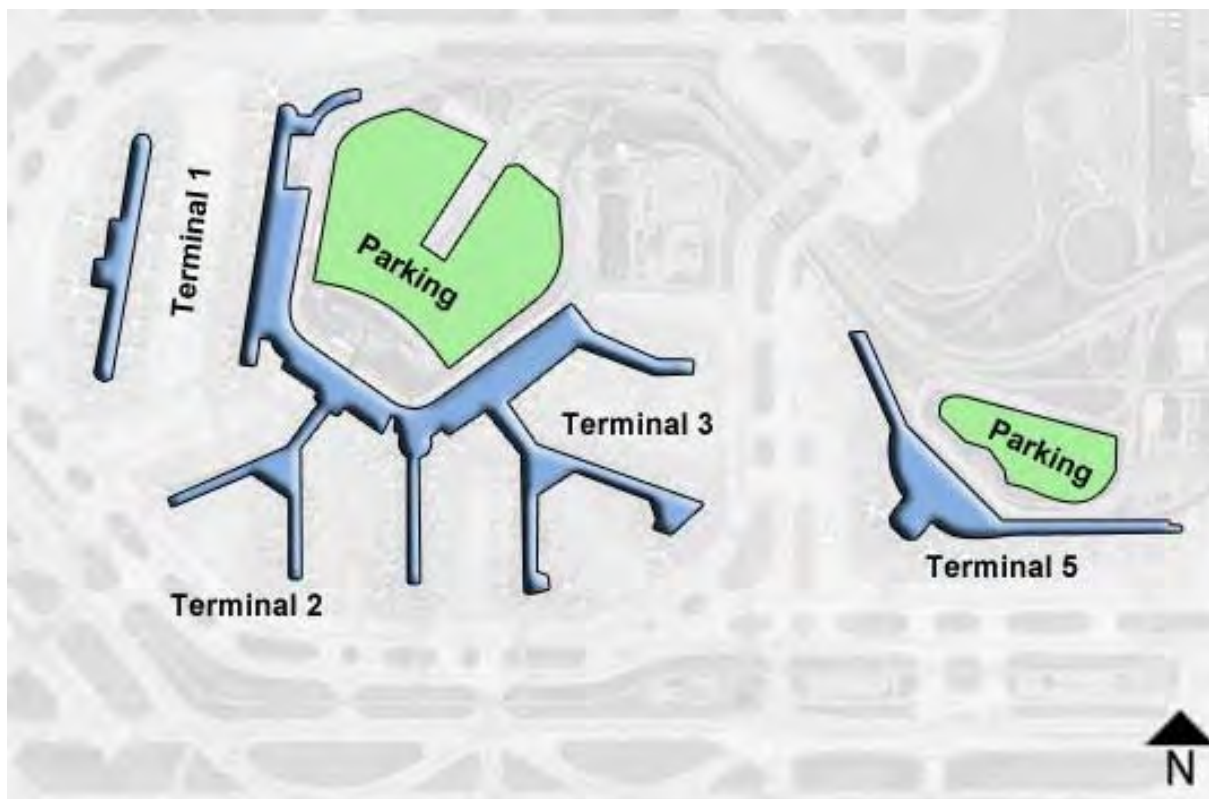


Figure 1. Map of terminals and parking areas at ORD.<sup>2</sup>

<sup>2</sup> "Chicago Ohare (ORD) Airport Terminal Map," *IFly.Com*, accessed June 5, 2019, <https://www.ifly.com/chicago-ohare-international-airport/terminal-map>.



## Section 1 Description

At the center of the property, Terminals 1, 2, and 3 form the Terminal Core Area, arranged in a U-shaped plan that opens to the northeast. The Heating & Refrigeration Plant and associated facilities are located at the northeast corner of the Terminal Core Area. The interior of the U is occupied by two large parking lots, bisected by a central roadway that provides access to the Elevated Parking Building. Terminal 1 forms the west side of the U-plan. The O'Hare Hilton Hotel is located between the Elevated Parking Building and Terminal 2 (the base of the U), and the Chicago Department of Aviation (CDA) control tower (formerly an FAA control tower) is centered on a grassy plaza that separates the hotel from Terminal 2. The Rotunda links Terminals 2 and 3 at the southeast corner of the U, and the FAA Main Control Tower is located immediately adjacent. The outside of the U formed by Terminals 1, 2, and 3 is occupied by a total of 168 contact gates and 15 remote hardstands.<sup>3</sup> Terminals 2 and 3 have concourses that extend onto the aprons in a perpendicular or Y shape, while Terminal 1 has a concourse (Concourse B) with gates along the west side of the main terminal building and a separate, parallel concourse (Concourse C) accessed via an underground tunnel.

Interstate Highway 190 (I-190) and the Chicago Transit Authority (CTA) O'Hare Rapid Transit Blue Line Rail Service enter the airport from the east. The Blue Line follows the central roadway to the parking area, where the O'Hare CTA Station is located below ground. The Airport Transit System (ATS) links the three domestic terminals, the international terminal, and the long-term parking area to the northeast by rail; the ATS is accessible via a transfer station from the Metra commuter rail service. Within the Terminal Core Area, the ATS tracks and a two-level vehicular circulation roadway separate the parking lot, garage, hotel, and CDA control tower from the terminals. The upper roadway level provides access to the ticketing area for departing passengers while the lower level provides access to the baggage claim and transportation for arriving passengers. ATS stations are located opposite each of the three terminals (as well as at Terminal 5) and are linked via covered pedestrian walkways across the roadway.

### B. Overview of Terminal 1 building

Terminal 1 is a Post-Modern building utilizing expansive glass and exposed steel structure (see Figure 2). It references London's Victorian-era Crystal Palace as well as historic rail stations that served as city gateways, making the experience of leaving or entering cities memorable.<sup>4</sup> It comprises a total of 1.4 million square feet and houses the United Airlines terminal complex, including ticketing and baggage areas and two concourses, Concourses B and C, which are connected by an underground passenger tunnel.<sup>5</sup> Both concourse buildings are three stories in height above ground with high barrel-vaulted ceilings and share a connected basement. Terminal 1 is connected via underground tunnels to the CTA Station and parking garage.<sup>6</sup>

---

<sup>3</sup> Aircraft parked at remote hardstand positions are accessed via shuttle bus rather than jet bridge.

<sup>4</sup> *Murphy/Jahn: Selected and Current Works*, The Master Architect Series (Australia: The Images Publishing Group, 1995), 214. Terminal 1 comprises CDA building numbers 221, 222, 225, and 226.

<sup>5</sup> *Murphy/Jahn: Selected and Current Works*, 214. Terminal 1 comprises CDA building numbers 221, 222, 225 and 226.

<sup>6</sup> The tunnels connecting Terminal 1 to the CTA Station and parking garage are a separate pedestrian tunnel system that was planned in 1971 and was later connected to Terminal 1. C.F. Murphy Associates, "Plans for Pedestrian Tunnels, Chicago O'Hare International Airport," 1971, Available in the Chicago Department of Aviation files, Chicago.

## Section 1 Description



*Figure 2. Terminal 1 overview, looking west.*

In plan view, Terminal 1 exists as two long, parallel, rectangular-shaped buildings with numerous bump-outs and recesses along the body and capped with rounded ends (see Figure 3).<sup>7</sup> The first building aligns with the roadway on the east side. Referred to as Concourse B, it includes ticketing and baggage areas on the roadway (east) side and airline gates on the west side, with an extension referred to as the “banana gates” (shaped like a banana) of Concourse B to the north, and a southern connector walkway to Terminal 2. To the west is an 815-foot-wide area between the two buildings that provides airside ramp space for the aircraft parking areas and dual taxilanes. Connected by an underground tunnel, the second building, referred to as Concourse C, is surrounded by the airside taxiways and airline gates.

<sup>7</sup> Chicago-O'Hare International Airport Development Program et al., “As-Built Plans for Terminal 1, Chicago O'Hare International Airport,” 1989, Available in the Chicago Department of Aviation files, Chicago.

## Section 1

### Description

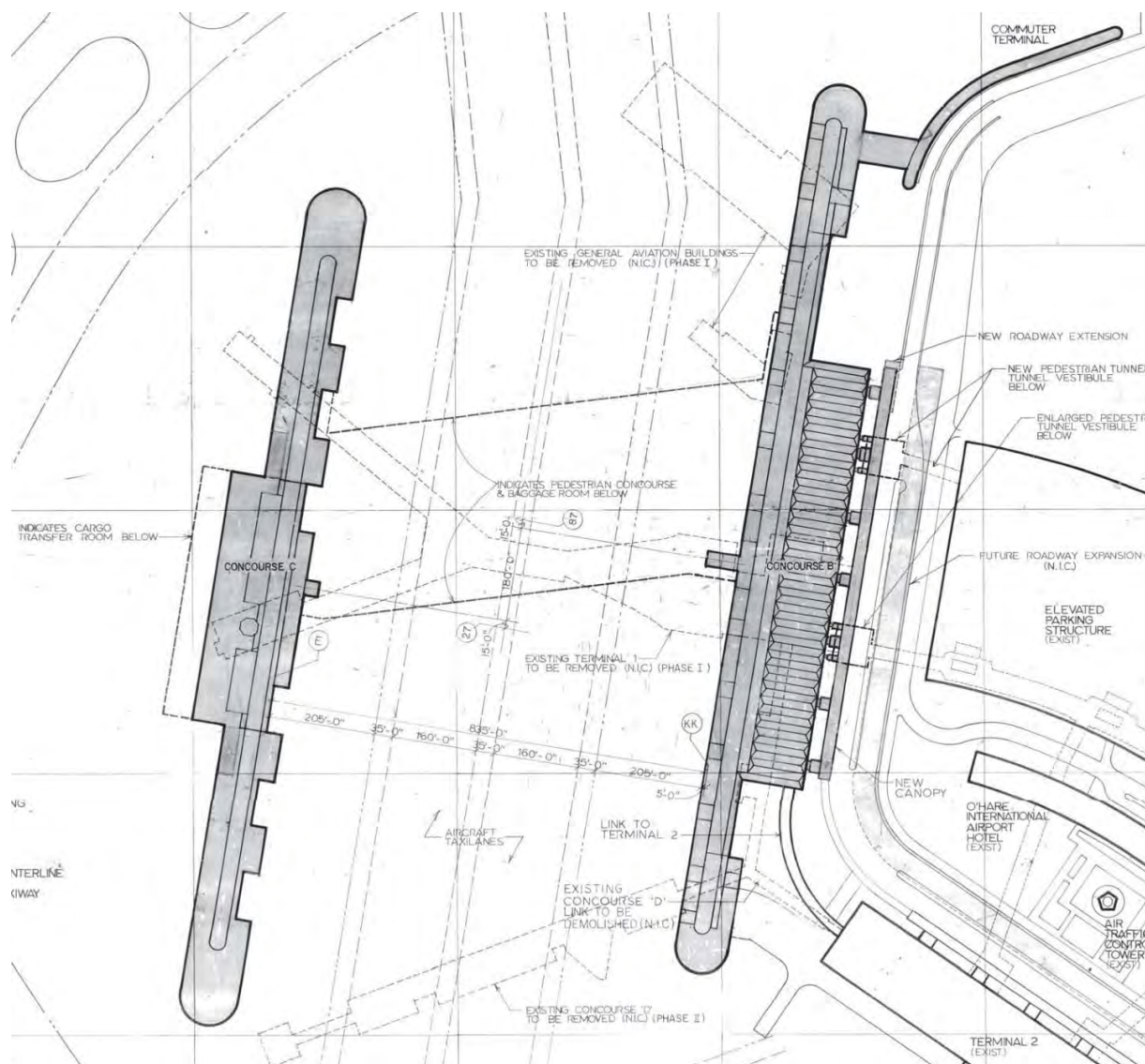


Figure 3. Terminal 1 plan map with ticketing and baggage areas adjacent to the roadway and banana gates at the north end of Concourse B.<sup>8</sup>

Each functional area has its own expression, yet all are tied together through the commonality of materials in their exposed steel structures and glass curtain walls/skylights, and the use of natural light. The ticketing and baggage portion of the building is distinguished from the concourse by its folded-plate roof structure. The concourses and connectors are signified by their high barrel-vaulted, circulation spines wrapped with the supporting hold rooms and service areas. The lower (apron and basement) levels are primarily utilitarian and provide back-of-the-house support spaces. The underground tunnel between the concourses is a vibrant space of movement and color through Michael Hayden's *Sky's The Limit* art installation (see Figure 4).

<sup>8</sup> Chicago-O'Hare International Airport Development Program et al., "As-Built Plans for Terminal 1, Chicago O'Hare International Airport," A 1.2.



**Section 1**  
**Description**

*Figure 4. Underground tunnel connecting Concourses B and C.*

A continuous curtain wall/arched roof skylight system with an exposed exterior aluminum arched structure that is painted white serves as the primary exterior enclosure (see Figure 5). This system is infilled largely by glass but also grey metal panels and louvers. The glass infill types range from the original clear and patterned glass with a ceramic frit square pattern to the replacement tinted and acid-etched glass with a striped pattern.



*Figure 5. Curtain wall enclosure with exterior aluminum arched structure shown in forefront.*

## Section 1 Description

The primary interior finishes are comprised of the exposed, painted steel, structural and continuous curtain wall/arched roof system with glass and interior perforated metal panels. This allows a dynamic play of natural light into the space. The rhythmic, arched steel trusses are detailed with a series of punched holes through the webs. The main circulation areas have an energetic dark grey, black, and white checkered terrazzo floor with red transition strips (see Figure 6). Partition walls are clad with two-tone blue, 6-inch-by-6-inch, structural glazed tile units. The secondary hold rooms have compressed lower ceiling spaces with acoustic, metal slat, ceiling panels and carpet finishes. Many of the hold rooms still have the original, designed furniture, referred to as the “Chicago Chair,” which has a unique chair shape side endcap that is then extruded into row seating, with blue leather seats and armrests (see Figure 7).<sup>9</sup>



Figure 6. Typical circulation spine interior, Concourse C.

<sup>9</sup> Helmut Jahn, *Airports*, ed. Werner Blaser (Basel Boston Berlin: [Birkhauser], 1991), 72.



**Section 1**  
**Description**

Figure 7. Typical hold room interior with “Chicago Chair” designed for Terminal 1, Concourse C.

**C. Ticketing/baggage area****(1) Overview**

Aligned with the incoming, stacked, double roadway system, the ticketing and baggage areas are contained within two stories on an upper level and exposed lower level. This area’s massing is rectilinear in plan and projects from the east side of Concourse B. It is 810 feet long by 122 feet wide and is easily distinguishable as a separate area with its folded plate, skylight roof system (see Figure 8).



Figure 8. Overall exterior view of the ticketing/baggage area.

## Section 1 Description

### (2) Exterior

The building is enclosed by an extensive, continuous, aluminum curtain wall system subdivided by a series of exposed, exterior, steel structure exo-skeletons and repetitive exterior, steel mullion reinforcement (see Figure 9). Primary steel columns, comprised of two 8-inch-diameter steel pipes tied together by regular steel plates, repeat along the facade every 30 feet. Within each steel plate is a decorative punched hole. Every 150 feet, steel cable X-braces are present to resist the lateral forces and wind loads (see Figure 10). These primary structural elements are all painted white.



Figure 9. Ticketing/baggage area exterior.



Figure 10. Ticketing exterior wall X-brace and curtain wall division.

## Section 1 Description

The curtain wall system is subdivided horizontally into six equal spaces between each 30-foot structural bay. A reinforcing, exterior, extruded aluminum pipe mullion is located at every other window (see Figure 11). The extension piece that engages the window is an aluminum plate fin (see Figure 12), with a perforated web in a series of narrow, obrounds (see Figure 13). The remaining mullions are extruded aluminum shapes that extend with fins on the exterior of the building.

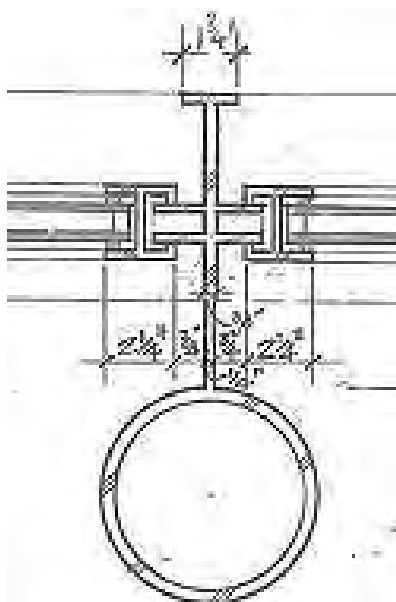


Figure 11. Sketch showing curtain wall mullion at reinforcing pipe structure.<sup>10</sup>

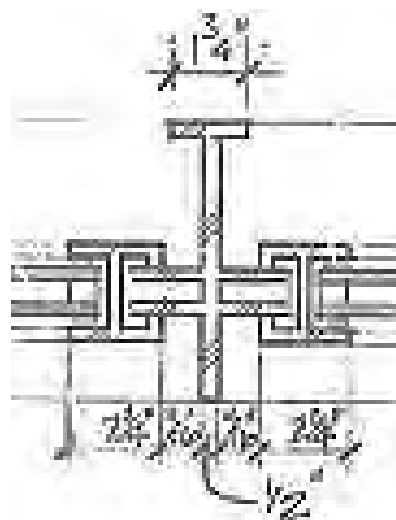


Figure 12. Sketch showing curtain wall mullion fin.<sup>11</sup>

<sup>10</sup> Chicago-O'Hare International Airport Development Program et al., "As-Built Plans for Terminal 1, Chicago O'Hare International Airport."

<sup>11</sup> Chicago-O'Hare International Airport Development Program et al., "As-Built Plans for Terminal 1, Chicago O'Hare International Airport."

## Section 1 Description



*Figure 13. Curtain wall structure.*

Vertically, the curtain wall system is divided into five sections. At the lower level it begins with a tall vision glass panel (glazing section at human eye level) and transom panel filled with clear, insulated glass units. An intermediate aluminum, insulated, sandwich-panel infill is present at the floor. An equal-sized vision glass panel is also present on the first floor and topped by an even taller transom panel. The vision panels are glazed with clear, insulated glass, and the transom panel is glazed with a striped, acid-etch-patterned, insulated glass unit.

A folded plate skylight roof system is above the wall system on the main body of the building (see Figure 14). The folded plates are triangular in shape and are extruded along the width of the building. The peaks consist of narrow tinted glass lites on each side, sloping down to a standing seam roof and terminating with a membrane roof gutter system in each of the valleys. The front gable end is canted back and infilled with a segmented, sloped and vertical window system of laminated glass with a striped acid-etch pattern.

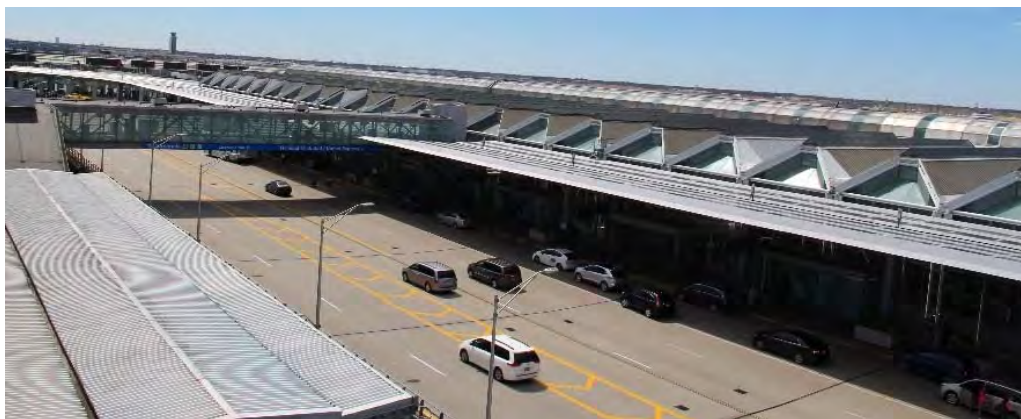


## Section 1 Description



*Figure 14. Folded plate skylight system.*

On the roadway approach to the ticketing level, a canopy covers the nearest lane of traffic, the sidewalk, and vestibules accessing the building and extends just short of the building proper (see Figure 15). It is an uneven-V, fin shape with slotted glass skylights and sits upon regularly spaced, large, round, metal-clad columns spaced every 30 feet. This canopy, installed in 2005, replaced a smaller canopy that was part of the original design for Terminal 1; however, the 2005 canopy was also designed by the Murphy/Jahn firm.<sup>12</sup>



*Figure 15. Ticketing level roadside approach.*

The first level features a series of one-story alternating vestibules connecting to the building, and free-standing curbside check-in/baggage collection rooms are located along the entire length of the building. The sidewalk extends to the entrance edges of the vestibules and curbside check-in rooms. Between these protruding structures are expansive open area wells down to the first floor (see Figure 16). A guardrail system with horizontal cables passing through thin aluminum fins is located around the open area wells.

<sup>12</sup> Murphy/Jahn Architects, "Plans for Terminal 1 Canopy, Chicago O'Hare International Airport," 2004, Available in the Chicago Department of Aviation files, Chicago.



**Section 1**  
**Description**

*Figure 16. Open area well between the ticketing upper level and baggage lower level.*

The original vestibules are distinguished by their curved roof shape and wide, metal-panel frame that extends down to the lower level. The vestibules are infilled by a glass curtain wall, and have three, double-door, swing, aluminum, automatic entry systems (see Figure 17). Vestibules 1Da and 1Db replaced an original vestibule that was removed, first shown revised in the 1993 curbside check-in drawings, when an overhead bridge connecting the parking garage to the terminal building was constructed.<sup>13</sup> The new vestibules have a narrow, square, metal panel frame infilled with curtain wall and one double-door, bi-parting, aluminum, automatic entry system.

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<sup>13</sup> Hanrath & Sinn Architects, "As-Built Plans for Proposed Relocation Curbside Check-in, Upper Level, Concourse B, Chicago O'Hare International Airport," 1993, Available in the Chicago Department of Aviation files, Chicago.

## Section 1 Description



Figure 17. Typical vestibule entry.

The curbside check-in/baggage collection rooms are rectangular rooms that sit on a steel pipe structure that is open at the lower level (see Figure 18). To the side of each room is an enclosed baggage chute that connects to the basement level below. Similar to the new vestibules, the rooms have a narrow, square, metal panel frame and infilled curtain wall and flat roofs. The front wall is a movable glass wall partition comprised of six aluminum frame panels. The glazing for these rooms is a striped acid-etch-patterned glass. These were added in 1993 by the firm Hanrath & Sinn Architects from Milwaukee, Wisconsin.<sup>14</sup>



Figure 18. Curbside check-in/baggage collection room.

<sup>14</sup> Hanrath & Sinn Architects, "As-Built Plans for Proposed Relocation Curbside Check-in, Upper Level, Concourse B, Chicago O'Hare International Airport."



## Section 1 Description

### (3) First floor interior: Ticketing area

The vestibules are low transition spaces entering the first-floor ticketing area. They have flat plaster ceilings, glazed curtain walls, and rubber floors. The building then opens to the expansive, column-free, two-story space with exposed, interior steel roof structure, curtain wall, and the dynamic folded plate skylight roof system (see Figure 19). The curtain wall and skylights bring in an abundance of natural daylight that fills the space, which is shielded from glare by the acid-etched horizontal pattern in the glazing. The sloped interiors of the folded plates are clad with white, horizontal, metal slat ceiling panels. A triangular, bladed light fixture system sits within each peak to deflect some natural light, but also provide light directly and indirectly to the interiors at night (see Figure 20). Large ceiling fans have been added to the ticketing area to provide cooling. The flooring is a diagonal checkerboard, with dark grey, black, and white terrazzo floors with red transition strips.



*Figure 19. Typical ticketing lobby interior looking at the exterior wall.*

## Section 1 Description



Figure 20. Folded plate ceiling and bladed light fixtures.

Two-story administrative/office function and toilet room areas are located at each end of the building (see Figure 21). These are enclosed by interior partitions that are clad with a geometric pattern of interior metal panel frames, with aluminum trim edges, and blue 6-inch-by-6-inch structural glazed tile infill. Within the private administrative areas, standard drywall partitions, acoustic ceiling tiles, and carpet finish out the areas.



Figure 21. Two-story administrative areas.



## Section 1 Description

The primary space consists of the central ticketing and baggage drop-off areas. At the front of the ticketing/baggage area is a large, open circulation area with walk-up airline check-in kiosks throughout. Baggage collection desks are located behind the kiosks (see Figure 22). They sit beneath a steel structure and metal grate dropped soffit hung from the ceiling. The webs of the steel structure have the signature circular punch openings, and the structure is adorned with a plethora of signage. This zone contains a solid black terrazzo floor. Beyond this zone are the lines for the TSA pre-check, and the interior opens back up to the two-story space and the checkerboard black and white terrazzo floor resumes. A series of frosted glass, movable partitions segregate the secure TSA screening areas from the passenger security line area. Rolling grilles with a clear plastic face within a steel soffit and frame system segregate the entire zone from the subsequent Concourse B.



*Figure 22. Customer service and baggage drop areas.*

The central ticketing/TSA security areas have seen changes over time. The passenger check-in process is now driven by self-service kiosks and baggage hand-off, offering time savings over the original configuration of conventional check-in counters lining the space to manage the check-in process. The TSA screening checkpoint space requirements have also increased with growing security concerns.

Within the ticketing circulation area, there are two sets of escalators and stairwells leading to the lower level, each enclosed by a blue pipe guardrail system with framed wire mesh infills (see Figure 23).



## Section 1 Description



Figure 23. Escalator to baggage lower level.

### (4) Lower level interior: Baggage claim

A primary circulation corridor is present along the eastern roadside, and the baggage claim conveyor belts and areas are to the back, western side of the building (see Figure 24). Pedestrian tunnels that link Terminal 1 to the parking garage and CTA Station are accessed via escalator or stairs located in the baggage claim level. An open metal pipe guardrail system, typically lined with seating and benches, separates the two primary areas (see Figure 25). Secondary areas at the rear (western) side contain toilet rooms and baggage customer service offices. Coffee and retail kiosks have also been added to the circulation areas over time. Throughout the circulation spaces, ceiling-mounted signage dominates overhead.

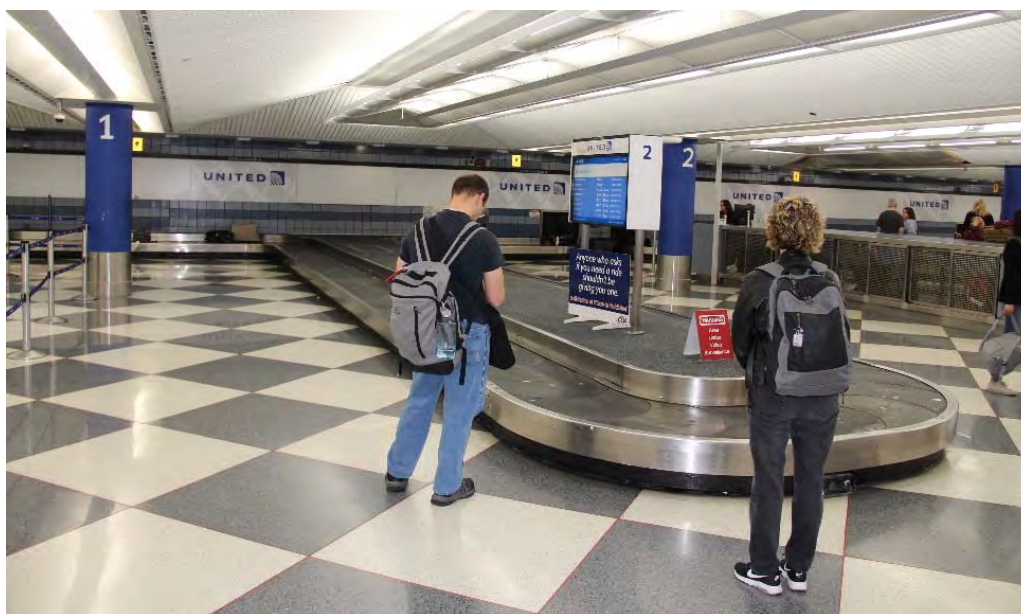
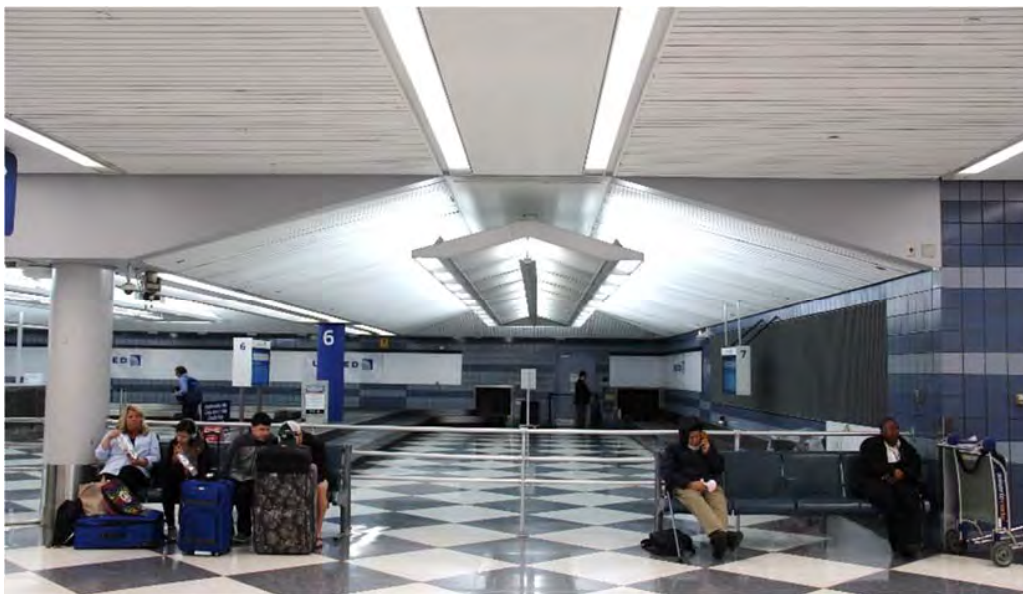


Figure 24. Baggage conveyor area.

**Section 1**  
**Description**

*Figure 25. Lower level baggage circulation area.*

The perimeter walls are generally clad with two-tone blue structural glazed tile walls. These lower level areas also contain the same diagonal checkerboard terrazzo floor. The ceilings are composed of white metal slat ceilings with integral linear light fixtures (see Figure 26). Small drop soffits occur at each vestibule to signify the exits. Over the baggage conveyors, low-slope, double-pitched vaults span the spaces between each of the columns (see Figure 24). Within each peak are inverted V-shape, linear light fixtures that run the entire length and are equipped with a series of direct and indirect light sources.



*Figure 26. Metal slat ceilings and railing transition between baggage circulation and conveyor areas.*



## Section 1 Description

### (5) South addition

A two-story addition was constructed in 2007 at the south end of the ticketing and baggage portion of the building, between the connector to Terminal 2 and Concourse B.<sup>15</sup> It is enclosed by the existing building on three sides and a new exterior curtain wall on the upper levels to the south. It is left open at the apron level, with only the columns extending below grade, to retain access to the baggage handling areas below. The roof is flat and contains four rows of single-sloped skylights that run the width of the building.

On the upper level, a third TSA screening checkpoint was added, as well as a new United Club on the mezzanine level above (see Figure 27). Large round, painted columns are spaced at regular intervals throughout the area. Frosted glass partitions and metal wall panels minimally divide the space from other circulation areas. The floor consists of white terrazzo in an oversized square pattern, with a narrow, dark grey terrazzo strip staggered at every other square. Diagonal control joints break the pattern through the entire length of the space, connecting the corners of the dark grey strips.



Figure 27. Interior photo of the circulation area of the south addition.

The ceilings vary depending on space. Within the two-story circulation area, the underside of the roof structure is exposed with open metal grating to diffuse the light and provide separation of the mechanical units to the space below. The TSA security checkpoint areas contain angled, dimensional, metal acoustic ceiling panels with linear strip lighting, subdivided by gypsum board soffits at the structural components. Drywall soffits and drop ceiling panels enclose the roof structure and frame the skylights above in the United Club portion (see Section 1.D.(6) for other interior finishes typical of this space).

<sup>15</sup> Solomon Cordwell Buenz & Associates, Inc., "Plans for United Terminal 1, Concourse B, South Addition, Chicago O'Hare International Airport," 2007, Available in the Chicago Department of Aviation files, Chicago.

## Section 1 Description

### D. Concourses B and C

#### (1) Concourse B overview

Concourse B is connected at its east side to the ticketing and baggage areas, with the airside gates to its west side. The primary building is 1,720 feet long by 100 feet wide, providing at present 18 aircraft gates.<sup>16</sup> The center of the concourse features a two-story circulation corridor that provides a flood of natural light through the combination, asymmetrical, low-arch, barrel-vault skylight; sloped skylight; and clerestory window curtain wall system (see Figure 28). This system stands 45 feet tall at the apex. The building steps down once at each end of the 1,660-foot-long, two-story corridor, culminating in an interior glass apse.

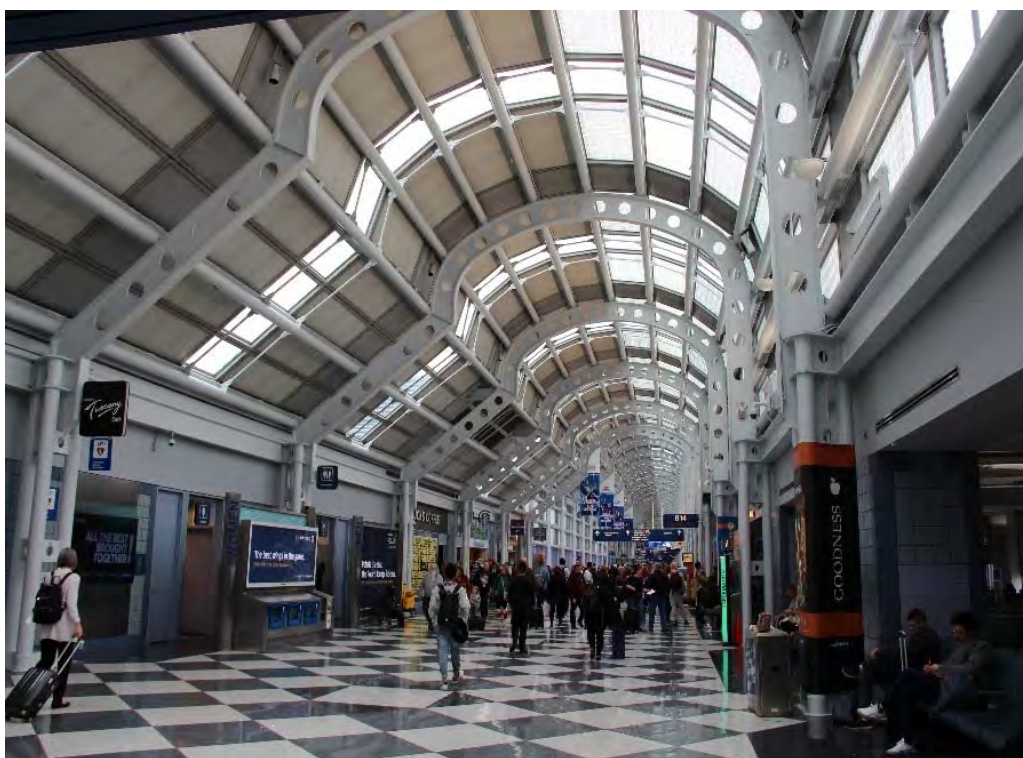


Figure 28. Main circulation spine, Concourse B.

#### (2) Concourse C overview

Concourse C is a freestanding building parallel to and 815 feet west of Concourse B, allowing for parallel taxilanes between Concourse B and Concourse C gates. It is 1,610 feet long and typically 110 feet wide but expands to 175 feet wide at the center. The aircraft gates surround its entire perimeter, currently providing 32 gates. Like Concourse B, Concourse C possesses a two-story circulation corridor allowing in natural light; however, its low-arch barrel vault has symmetrical, flanking, sloping skylights (see Figure 29). Due to the need to maintain a clear line of sight from the FAA Central Control Tower to western

<sup>16</sup> All dimensions and materials listed are as presented on the as-built plans for Terminal 1 provided by the Chicago Department of Aviation. Chicago-O'Hare International Airport Development Program et al., "As-Built Plans for Terminal 1, Chicago O'Hare International Airport."



## Section 1 Description

taxiways, Concourse C is 32 feet in height at the apex as compared to Concourse B, which is 45 feet in height. Concourse C also steps down once at each end of the 1,550-foot-long, two-story corridor, culminating in an interior glass apse. Its highest bay is limited to the central 480 feet of the concourse, where it expands to the 175 feet in width. Concourse C features a ramp control tower located at the center on the roof. Utilized for logistics planning by United Airlines, the ramp control tower rises to just over 58 feet above the apron.



Figure 29. Main circulation spine, Concourse C.

### (3) Concourse exteriors

The primary buildings consist of multiple volumes along their length (see Figure 30). At the center is a primary spine expressed with a high, low-arch, barrel-vault skylight system that steps down and culminates in a half dome at each far end. Wrapping the perimeter of this central spine are successively lower flat roof volumes. The entire upper level facades are clad in an aluminum curtain wall system that has rounded outside corners, at the top and bottom, extending over the painted, concrete-masonry-unit, lower-level base. The curtain wall systems are infilled with a regular pattern of clear glass, patterned frit glass, tinted glass, and insulated metal panels. Gantry ladders are located at each end of each barrel-vault height (see Figure 31). These ladders are mounted to a track and were originally able to slide along the length of the roof. Currently these are locked in place and are not being utilized since they create damage to the structure when moved.<sup>17</sup>

<sup>17</sup> Dorothy Izewski, Supervising Architect, City of Chicago, Interview with Mead & Hunt, Inc., Chicago, April 11, 2019.

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**Description**

*Figure 30. South end of Concourses B and C exteriors.*



*Figure 31. View of a gantry ladder.*

The ramp tower rising above Concourse C is located just south of the center of the building (see Figure 32). The shaft is oval in shape and clad in metal panels. Sitting on top is the CAB, also oval in shape, which is segmented into 18 sides. An aluminum curtain wall encloses the CAB area with clear glazing above countertop height and metal panels from countertop height down to floor level. It is then capped by a metal panel “baseball hat-shaped” roof that is rounded on top and extends with a bottom rim. The top has a flat roof system and houses numerous radio tower components.



**Section 1**  
**Description**

*Figure 32. Concourse C ramp tower.*

**(4) Concourse B “banana gates” overview**

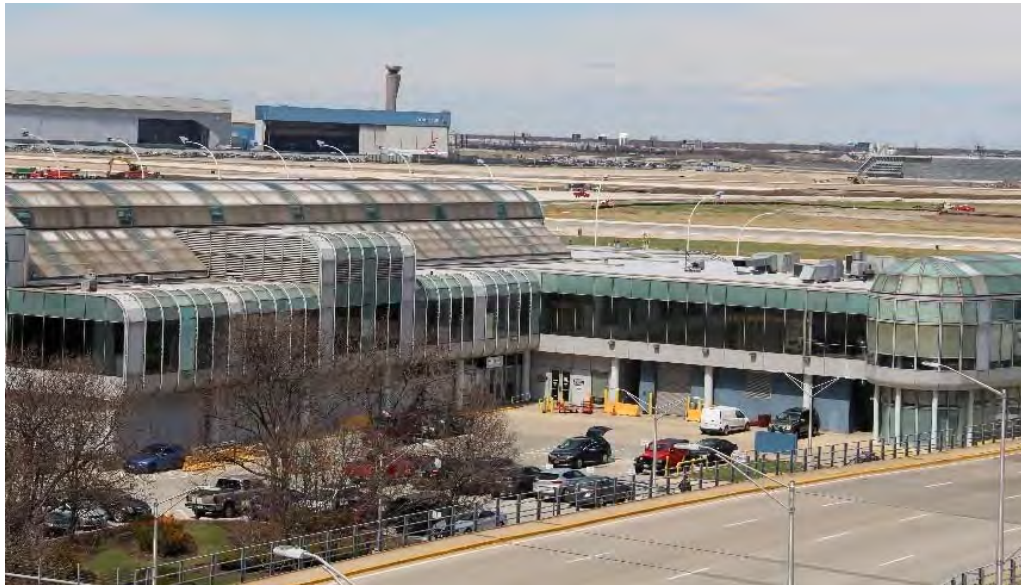
The Concourse B “banana gates” extend from the northeast side of Concourse B and curve to mimic the bend in the main terminal roadway (see Figure 33). The building is connected to the main Concourse B by a 90-foot-wide by 100-foot-long extension service and circulation corridor. This area provides an additional six gates: three within the concourse building and three through a boarding bridge equipment extension. The building housing the banana gates is approximately 435 feet long and is 26 feet wide at the south end, widening to 52 feet, 6 inches at the north end.



*Figure 33. “Banana gates” exterior.*

## Section 1 Description

The connector from the main concourse circulation spine to the banana gates is a rectilinear shaped volume. It is distinguishable from the rest of the concourse design because the curtain wall system has square corners, which deviates from the curved corners used on the rest of the building (see Figure 34). The main concourse level overhangs the lower/basement level and sits on a row of exterior, round columns. This interior space includes a restaurant concession and kiosk concessions.



*Figure 34. Exterior connection point from Concourse B to the banana gate.*

The building housing the “banana gates” possesses its own primary circulation spine (see Figure 35). Its roof shape is a singular, symmetrical, low-arch barrel vault that culminates at each end of the interior with a half-dome apse. Large ceiling fans have been added in the “banana gates” to provide cooling. Directly adjacent of the circulation spine, to the west/airside only, is the hold rooms for the six gates. Kiosks are located within the circulation spine that contain concessions.



## Section 1 Description



*Figure 35. Main circulation spine of the “banana gates.”*

The “banana gates” area was originally used as an apron loading commuter concourse, with individual stairwells for each boarding gate that led to a lower level room to access the airfield and walk out to the aircraft. The stairwells have since been infilled to accept standard passenger loading bridges and commercial aircraft heights.

### **(5) Concourse connector to Terminal 2**

A single corridor connects Terminal 1 and Terminal 2 at the south end of Terminal 1's ticketing area. The corridor bends in a crescent shape to connect with the back half of Terminal 2 (see Figure 36). The corridor is 320 feet long by 25 feet wide. It is a one-and-one-half-story building with a single, low-arch, barrel-vault skylight signifying a circulation spine. It sits on top of columns, with drive access below between the roadside and airside; fencing and security prevent public access.

## Section 1 Description



Figure 36. Exterior view of the connector where it connects to Terminal 2 to the south.

### (6) Concourse components

The concourses are generally organized into three use categories: primary, two-story circulation corridors; one-story hold rooms; and secondary spaces housing various segregated areas reserved for retail food/concession spaces, toilet rooms, administrative spaces, and private United Club areas, as discussed below.

#### *Circulation corridor interiors*

The two-story circulation corridors are most distinguishable by the combination barrel-vault skylight, sloped skylight, and clerestory window curtain wall system that allows natural light into the concourses (see Figure 37). This roof system is supported by primary and secondary, exposed, steel structural components. The primary steel girders have the signature punched circles in the webs and bear on various clusters of 8-inch steel pipe columns (see Figure 38). The pipe columns are banded together by steel plate flanges and ties, also featuring the punched circles in the web. Steel pipe purlins span between the girders in line with the curtain wall mullions; steel rods in line with the vertical mullions tie the purlins together. The concourse connector also possesses an additional steel beam spanning between the columns at the base of the vault on each side to provide additional stiffness. It contains the signatory punched circles in the web along the entire length of the connector.

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Description**

*Figure 37. Concourse main circulation spine and half dome apse.*



*Figure 38. Concourse girder, beam, and column connection point.*

The curtain wall/skylight system consists of an aluminum-frame system (see Figure 39). The windows alternate between long rectangular- and square-shaped openings in an A-B-C-B-A pattern between columns. Square-shaped metal panels center on each girder, followed by a rectangular windowpane with



## Section 1 Description

the square fritted glass pattern, and then a central square, clear-glass pane. At the east side of the building, perforated metal panels take the place of the rectangular glass panes to reduce glare in the space. The curtain wall extends to the vertical wall at the east/roadside, with tall vertical, vision panels (glazing section at human eye level) at the floor level. These vertical panels as well as the square clear glass panels are infilled with tinted glass panes.



*Figure 39. Concourse B curtain wall glazing.*

The floor of the circulation corridors is the diagonal, dark gray, black, and white checkerboard patterned terrazzo floor with red transition strips used throughout much of the terminal. Originally the primary circulation spines contained moving walkways. In Concourse B these were located on the east side of the corridor, also aligned with the sloped portion of the skylights above. In Concourse C they were located within the center of the corridor. However, these walkways were removed in 2014 and the terrazzo floor patterns were infilled to match in-kind.

Signage fills much of the space, whether wall-mounted, cantilever sign types or large format signs hung from the girders. Many of the structures that support the signage are original, with steel plate and tie rod connections. Other signage has been added over time; many of these are affixed to the wall surfaces or are films applied to ground level glazing.

Decorative pendant lighting has been added to the connector (see Figure 40). There are also numerous, artistic window films that have been added to the exterior windows at the connector and the “banana gates” (see Figure 41). Multiple retail and coffee kiosks have also since been added up and down limited areas of the corridor areas.



**Section 1**  
**Description**

*Figure 40. Connector interior showing pendant lighting.*

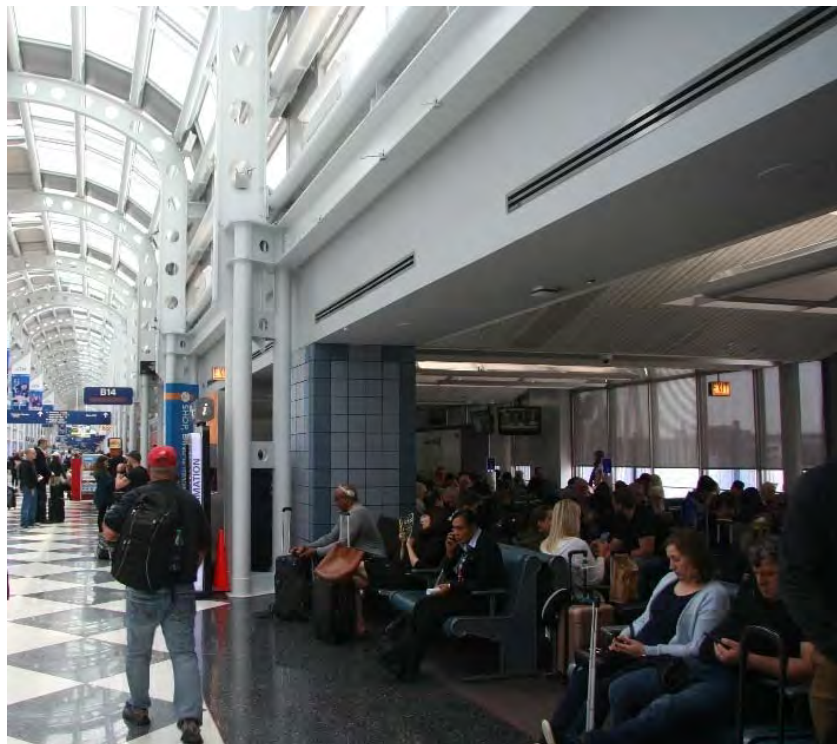


*Figure 41. Decorative window film in the "banana gates" area.*

## Section 1 Description

### *Concourse hold rooms*

Directly adjacent to the primary corridors are the hold rooms (see Figure 42). At the transition of the corridor to the hold rooms are large drywall soffits concealing building mechanical equipment, and sporadic enclosed pipe chases clad with the two-tone blue, 6-inch-by-6-inch glazed tile units. This is also where the hold rooms transition to carpet floor finishes. Beyond these transitions are the low, one-story areas with views out to the airfield. They are enclosed at the exterior by aluminum curtain walls with rounded outside corners at the head and below the floor.



*Figure 42. Typical hold room transition from the main circulation area.*

The curtain walls have a tall, clear-glazed, vision panel at floor level, with acid-etched striped glass at the series of transom windows that curve overhead (see Figure 43). The ceiling systems above are metal slat ceiling panels that are composed in low-slope, double-pitched vaults between each of the columns. Within each peak are inverted V-shape, linear light fixtures that run the entire length, equipped with a series of direct and indirect light sources. Wrapping the apses, at the half-circle end caps of the concourse, the ceiling is detailed with an array of linear lights with drywall and horizontal metal slats in between (see Figure 44).



**Section 1**  
**Description**

*Figure 43. Typical hold room edge and ceiling conditions.*



*Figure 44. Area wrapping the circulation apses.*

Many of the hold rooms retain the custom-built tandem seating and gate agent desks. The original seats, titled the “Chicago Chair” and designed by Murphy/Jahn, have a unique chair shape featuring a side

## Section 1 Description

endcap that is then extruded into tandem seating, with blue leather seats and armrests (see Figure 45).<sup>18</sup> The original gate agent desks and signage back-drops are made from blue plastic laminate and aluminum, metal panel trim. The desks themselves are at a standing transactional height at approximately 4 feet tall with computer shielding. The backdrops stand at 7 feet tall. All of the outward-facing corners are rounded, emulating the hold room curtain wall shape (see Figure 46). Some of the hold rooms have modern gate agent desks and seating.



Figure 45. The "Chicago Chair."



Figure 46. Typical gate agent desks.

<sup>18</sup> Jahn, *Airports*, 72.



## Section 1 Description

### *Secondary space interiors*

The segregated areas reserved for retail food/concession spaces, toilet rooms, administrative spaces, and private United club areas are also at the perimeter of the primary corridor (see Figure 47). Although numerous reconfigurations and finish upgrades have occurred over time, these areas were originally designated in the plans for these functions. In Concourse C, private club space was expanded in 1995 by constructing an exterior addition on the east side at mid-concourse near present Gate C16.<sup>19</sup> The partition walls between the hold rooms and the primary corridor vary, but typically range from drywall partitions or the two-tone, blue, 6-inch-by-6-inch glazed tile units. At all the main spaces, the large soffit transition, housing mechanical equipment, continues down the entire length of the corridor. The retail food/concession spaces are designed with finishes that fit their typical commercial branding.



Figure 47. Typical secondary areas including toilet rooms, offices, and retail/concessions.

Concourse C also contains an original sizeable area that clusters seven food vendors into a single, food court area on the northwest side, and contains exterior, airside views out of its dining area (see Figure 48 and Figure 49). This space is highlighted by unique, backlit, undulating metal ceiling clouds. Partition walls consist of acoustical, perforated screens in a checkerboard pattern. The floor also contains this square pattern with porcelain floor tiles.

<sup>19</sup> Chicago Department of Aviation, "Terminal 1: Modifications Since Construction," Microsoft PowerPoint file provided by the Chicago Department of Aviation.

## Section 1 Description



Figure 48. Concourse C food court.



Figure 49. Concourse C food court dining area.

The toilet rooms have been remodeled over time with updated finishes and modified configurations to increase capacity. Floor-mounted partitions with frosted glazing have been affixed outside the toilet room entries; however, these have recently been covered with signage film.



## Section 1 Description

Within Concourse B there are two United Club lounges for preferred United passengers. One club was added above the security checkpoint addition at the south end of the concourse in 2007, and the other is located at the north end of the concourse. Concourse C contains one United Club and one Polaris Club lounge near the center of the concourse. The clubs display modern finishes as they have been remodeled to reflect United's current branding.

### (7) Concourse lower level space interiors

The spaces (apron level and basement level) below the concourses provide mechanical areas, support services for terminal operations, and private staff areas. Along the passenger tunnel's north side and below portions of Concourses B and C, the baggage handling areas dominate the basement level. The primary sorting area, with its plethora of bar code scanners, conveyors, and baggage carts, runs the entire length of the tunnel, housing the baggage to be delivered to the individual gates and aircraft (see Figure 50). These areas are entirely utilitarian with exposed structure and bare concrete floors.



*Figure 50. Baggage sorting room.*

Ground control offices, training rooms, break rooms, storerooms, and maintenance shops fill much of the basement level of Concourse C. The office/administrative areas are utilitarian with gypsum board partitions, acoustic ceiling tiles, and rubber flooring or carpet (see Figure 51). The storerooms and maintenance shops are also utilitarian with exposed structure and bare concrete floors. However, the main aircraft parts “store” room is nearly two stories in height and contains full-height racking for storing parts. An automated parts delivery system serves to “pick” the parts kits when ordered directly by the mechanics in the field (see Figure 52). The parts are then delivered through pneumatic tubes or in motorized containers along a monorail system directly to the airfield.

**Section 1**  
**Description**

*Figure 51. Typical back-of-house office areas.*



*Figure 52. Automatic picking system in the stores room.*



## Section 1 Description

Concourse C also contains administrative spaces at the apron level for United Airlines, including a staff cafeteria, pilot lounge and flight planning areas, flight attendant lounge, and United's main flight operations control room. It has gypsum board partitions and acoustic ceiling panels, but these areas have higher end finishes: paint color, gypsum board soffits with decorative lighting, and built-in casework.

### E. Tunnel

A passenger tunnel with pedestrian walkway connects Concourses B and C, passing beneath the dual taxilanes. A total of 815 feet separate the two concourses, including the tunnel and the escalators at either end. The tunnel itself is approximately 610 feet in length and approximately 64 feet wide. It is oriented at a slight angle in order to accommodate the offsets of the centers of the concourses. Each end of the tunnel is then canted to access each concourse in a perpendicular abutment. A total of eight moving walkways occupy the center of the corridor, divided into two groups of four and separated by a 25-foot gap at the midpoint of the tunnel (see Figure 53). Eighteen-foot-wide aisles run along either side of the moving walkways.



*Figure 53. Midpoint of tunnel with gap between sets of moving walkways.*

The tunnel is accessed from the midpoint of each concourse by escalators and stairs from the upper level. An atrium surrounds each escalator from the upper level; lined with painted steel columns, these are open to admit daylight from above (see Figure 54). Beyond each escalator, a semicircular curved wall plane, clad in the two-tone blue structural glazed tile, separates the secure spaces in the basement level and houses the passenger elevators to the concourse upper levels (see Figure 55). Beyond the atrium at Concourse B's primary escalator, a glass partition and automatic doorways are also present and lead to a second set of stairs and escalators to the baggage claim area (see Figure 56).

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Figure 54. Escalator from Concourse B and east entrance to the tunnel.

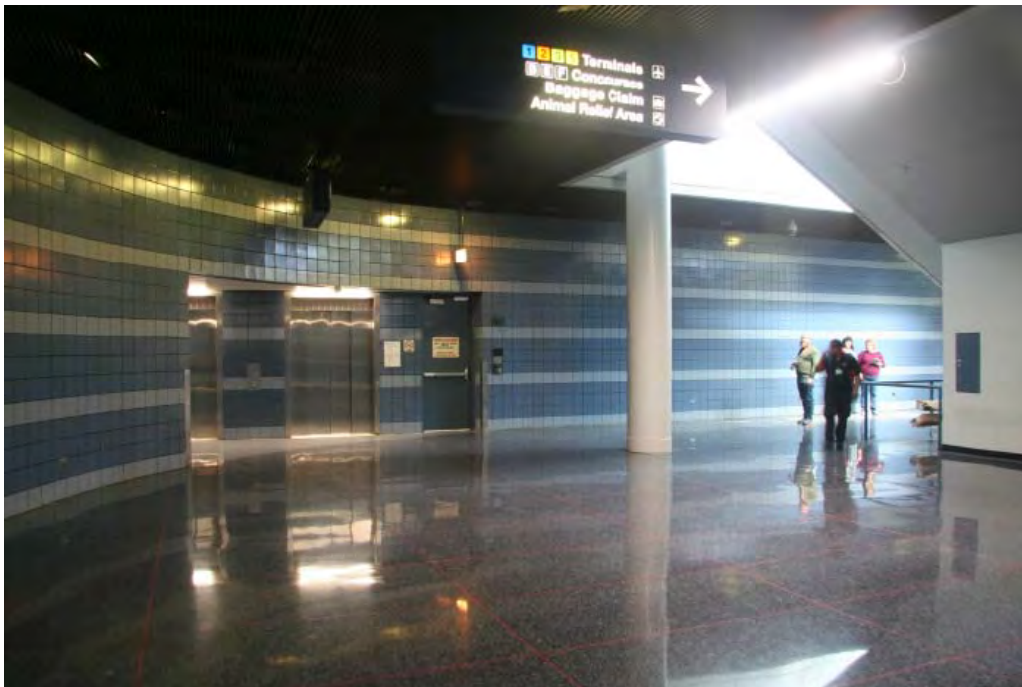


Figure 55. Curved wall at rear of escalator from Concourse C.

**Section 1**  
**Description**

*Figure 56. Rear of Concourse B escalator showing extended atrium and doorway to baggage claim escalator.*

A pair of alcoves are located on the north wall at the midpoint of the tunnel in the area between the two sets of moving walkways (see Figure 57). The alcove walls are clad in the same two-tone blue structural glazed tile found on the walls at the base of each escalator to the tunnel. A doorway located between the two alcoves (at the midpoint of the north wall of the tunnel) opens into the baggage room. Undulating walls line either side of the tunnel, repeating every 29 feet (see Figure 58).



## Section 1 Description



*Figure 57. Alcoves on north wall of tunnel.*



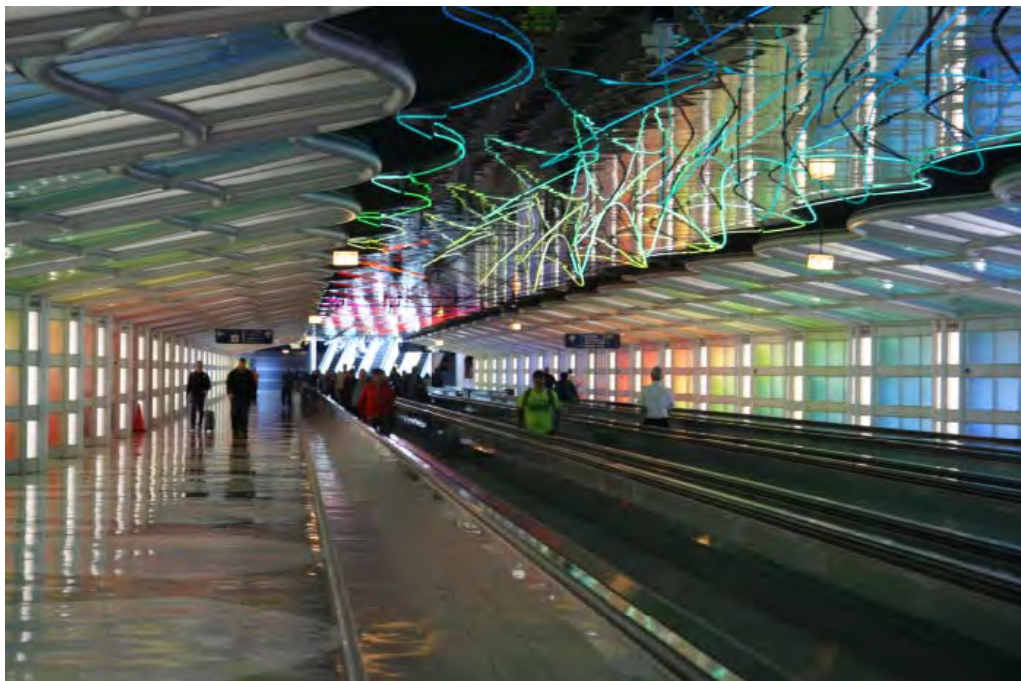
*Figure 58. Representative image of undulating wall panels and awning.*

Once in the tunnel, visitors are immersed into the art installation by Michael Hayden's *Sky's The Limit* (see Figure 59). The tunnel walls are comprised of a white aluminum grid formed by vertical tubes and horizontal bands of flat panels. This grid is infilled with frosted glass panels held in place by metal corner clips. A narrow access corridor behind the glass panels allows the panels to be backlit and reveal the color painted on the wall behind. A scalloped cantilevered soffit extends over the side walkways. Referred



## Section 1 Description

to as the “tree assembly,” the radial ribs are an extension of the aluminum grid and the backlit, frosted panel system of the walls that fan out from the undulating walls below.



*Figure 59. Representative image of tunnel showing Michael Hayden's Sky's The Limit.*

Above the moving walkways, the central portion of the corridor has a drop ceiling made up of 23,600 square feet of mirrored paneling suspended at a height of 14 feet by T-shaped hangers and double-sided tape. Neon elements, colored in a range that progresses from warm to cool tones, are mounted on the mirrored portion of the ceiling. The visual element of the neon is complemented by looping audio originally designed by William Kraft. The current audio loop is “Rhapsody Ambience,” a recording of Gershwin’s “Rhapsody in Blue” arranged by Gary Fry. Black anodized metal paneling is visible in the gaps between the side awnings and mirrored central portion of the ceiling.

The floor of the tunnel consists of terrazzo in the same color scheme found elsewhere in the terminal: dark grey, black, and white areas separated by red transition strips. However, the floor pattern mimics the undulation of the wall plane rather than the simple checkerboard grid used in other areas of the terminal (see Figure 60).

**Section 1**  
**Description**

*Figure 60. Detail of terrazzo flooring.*

Directional signage in the tunnel is limited. Signage is suspended from the ceiling and is consistent with that found elsewhere in the terminal.

**F. Summary of alterations**

A summary of the alterations to Terminal 1 are presented below by area and in chronological order.

**(1) Ticketing/baggage area**

- Reportedly as early as 1988: Glazing changes.
- Between 1988 and 1993 (specific date unknown): New vestibules 1Da and 1Db to accommodate the overhead tunnel connecting to the parking garage and transit station.
- 1993: Added curbside check-in baggage collection rooms.
- 2005: Exterior canopy entirely replaced.
- 2007: Two-story TSA addition/United Club to the south of the ticketing area.
- 2014: Modification of the interior ticketing area, utilizing self-service kiosks in lieu of full-service ticketing agent desks.

**Section 1**  
**Description****(2) Concourses**

- Reportedly as early as 1988: Glazing changes.
- 1995, 2007, 2008, 2017: Continuous modifications/modernization of United Club areas including exterior addition at the middle of Concourse C.
- 2006, 2007, 2010, 2014: Modifications/modernization of toilet rooms.
- 2014: Removal of moving walkways and replacement with terrazzo flooring in-kind.
- 2016: "Banana gates" floor infills at former stairwells to accommodate standard jet aircraft boarding heights.
- Continuous: Modifications to retail food/concession areas.
- Continuous: Modifications/modernization of lower/apron level support spaces.
- Continuous: Modifications/modernization of administrative spaces.

**Section 1**  
**Description**

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## Section 2

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### A. History of O'Hare International Airport

In the 1920s commercial air service was a relatively new phenomenon in the United States, but the popularity of air travel increased quickly. The first municipal airport to serve the city of Chicago was Chicago Municipal Airport, later renamed Midway Airport, which opened in 1927 on the southwest edge of the city. Due in part to Chicago's central location within the country, passenger traffic at Chicago Municipal increased over 600 percent between 1931 and 1943. By the early 1940s the airport was operating well beyond its capacity. While Chicago's location within the country was a boon to business, the airport's location within the city was not. Surrounded by growing neighborhoods, Chicago Municipal had no room to grow. The need for more space to accommodate the ever-growing number of passengers and larger aircraft prompted the City of Chicago (City) to search out a location for a new airport.<sup>20</sup>

The development of O'Hare International Airport (O'Hare or "the airport") began in 1942 when the federal government purchased 1,000 acres near the hamlet of Orchard Place on the northwest outskirts of Chicago, which it leased to Douglas Aircraft (Douglas) to build and operate a factory constructing troop transports during World War II. The Orchard Place location was chosen for its proximity to established rail lines and a suburban work force. The Douglas factory closed its doors at the end of the war, but the expanded facilities and potential for future growth made Orchard/Douglas Field an ideal site for the City to build a new and larger airport (see Figure 61). The federal government donated the airport property to the City, and the first commercial flights at Orchard/Douglas Field began in 1946. The airport was renamed Chicago O'Hare International Airport in 1949 in honor of the Chicago-born pilot Edward H. "Butch" O'Hare, who had been shot down in the Pacific during World War II. The village of Orchard Place was eventually absorbed by the expanding airport, but its legacy lives on in the airport identifier for O'Hare, ORD.<sup>21</sup>

Plans were quickly drafted to develop O'Hare into a major international airport that could support the expanding traffic at Midway. City planner Ralph H. Burke drafted O'Hare's first master plan in 1948, envisioning a design with multiple "split-finger" terminals extending from a central "grand concourse," with a single roadway leading to parking areas fronting the central concourse (see Figure 62). Burke's plan took a few years to materialize and his complete design was never fully constructed. By the time of his death in 1956 only one terminal (the original Terminal 1) had been completed.<sup>22</sup>

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<sup>20</sup> David Brodherson, "All Airplanes Lead to Chicago: Airport Planning and Design in a Midwest Metropolis," in *Chicago Architecture and Design 1923-1993: Reconfiguration of an American Metropolis* (Chicago and Munich: The Art Institute of Chicago and Perstel-Verlog, 1993), 80–83.

<sup>21</sup> Richard P. Doherty, *The Origin and Development of Chicago-O'Hare International Airport (Dissertation)* (Muncie, IN: Ball State University, 1970), 9–11, 27; Anne Royston, "Chicago-O'Hare International Airport," in *AIA Guide to Chicago* (San Diego, New York and London: Harcourt Brace, 1993), 262.

<sup>22</sup> Brodherson, "All Airplanes Lead to Chicago: Airport Planning and Design in a Midwest Metropolis," 85–86; Royston, "Chicago-O'Hare International Airport," 262; "The Fascinating History of Chicago's O'Hare International Airport 1920-1960," *Airways*, April 7, 2014, <https://airwaysmag.com/2014/04/07/chicago-ohare-history/>.

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Figure 61. Overview of the locations and relative size of Midway Airport (Chicago Municipal Airport) and the proposed O'Hare (Orchard Place/Douglas Field) facilities in relation to the city of Chicago, 1948.<sup>23</sup>

<sup>23</sup> Ralph H. Burke, *Master Plan of Chicago Orchard (Douglas) Airport* (Prepared for City of Chicago, January 1948), 21, available in Transportation Library Digital Collections: Chicago O'Hare International Airport, <https://archive.org/details/masterplanofchic00burk>, Northwestern University Transportation Library.



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*Figure 62. 1948 drawing of Ralph Burke's proposed design for O'Hare featuring a central roadway approaching the grand concourse with split-finger terminals extending into the airfield. Note that Burke's terminology contrasts with modern airport terminology, in which the central structures are referred to as terminals leading to the concourses where aircraft arrive.<sup>24</sup>*

Following the construction of the first terminal, new jet liners introduced in the late 1950s revealed the shortcomings of Burke's initial plan. New aircraft such as the Boeing 707 and Douglas DC-8 not only carried twice as many passengers as earlier commercial aircraft, but required longer runways and more space at the terminal gates to accommodate wider wingspans. In 1955 Mayor Richard Daley commissioned the architectural firm Naess & Murphy, renamed C.F. Murphy Associates (C.F. Murphy) in 1957, to review Burke's original plan and build upon it with larger terminals and greater automobile access. C.F. Murphy partnered with the Cincinnati-based firm Landrum & Brown to complete the new airport design. Terminals 2 and 3 (completed in 1961 and officially opened in 1962) were laid out as larger versions of Burke's "split-finger" design. The Rotunda building (1962) was placed between the two new terminals as an open space for travelers to congregate, dine, and view the aircraft moving across the airfield. More so than Burke's smaller Terminal 1, the glass and steel designs of C.F. Murphy's O'Hare Terminal 2 and 3 buildings clearly reflected the Miesian philosophy of modern architecture, characterized by streamlined rectilinear designs and honest use of building materials (see Figure 63). The original Terminal 1 building became the airport's international terminal.

<sup>24</sup> Burke, *Master Plan of Chicago Orchard (Douglas) Airport*, 22.

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Burke had also underestimated the role of the automobile in air travel. By 1960 a new highway was completed between the Chicago Loop and O'Hare with space in the median for a future commuter train line. C.F. Murphy's design incorporated a bi-level roadway fronting the three terminals, allowing passengers to enter and exit the airport on separate levels.



Figure 63. View of Terminal 2 at night showcasing C.F. Murphy's minimal modernist design, 1962.<sup>25</sup>

Further improvements to O'Hare were completed in the early 1970s (see Figure 64). In 1970 a new control tower, based on a standardized design developed for the FAA by I.M. Pei in the early 1960s, was constructed in front of the terminals.<sup>26</sup> A new Hilton Hotel and parking garage, both designed by C.F. Murphy, were completed in 1972 and 1973, respectively. At the time of construction, the parking garage at O'Hare was the largest in the world.<sup>27</sup>

<sup>25</sup> Kori Rumore, "From Farmland to 'Global Terminal': A Visual History of O'Hare International Airport," *Chicagotribune.Com*, accessed July 1, 2019, <https://www.chicagotribune.com/news/ct-ohare-international-airport-development-history-timeline-htmlstory.html>.

<sup>26</sup> Philip Jodido and Janet Adams Strong, *I.M. Pei: Complete Works* (New York: Rizzoli, 2008), 93–95.

<sup>27</sup> American Institute of Architects et al., *AIA Guide to Chicago* (San Diego, New York and London: Harcourt Brace, 1993), 265–67; David Brodherson, "An Airport in Every City: The History of American Airport Design," in *Building for Air Travel: Architecture and Design for Commercial Aviation* (Munich and New York: Prestel and The Art Institute of Chicago, 1996), 84.



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Figure 64. Aerial view of completed O'Hare facilities in 1976, including the parking garage, Hilton Hotel, and the original control tower with a circular roadway between these facilities and the terminals.<sup>28</sup>

In 1962, following the completion of Terminals 2 and 3, operations at Midway Airport were transferred to O'Hare, which soon became, and has remained, one of the busiest airports in the United States.<sup>29</sup> Every major American city could be reached from Chicago on relatively short flights, which established O'Hare as a primary location for connecting flights across the country. The fact that O'Hare had been specifically designed to accommodate the jet liners of the 1950s and 1960s added to its importance as a major airport. O'Hare's importance as a connecting airport increased following the Airline Deregulation Act of 1978. Among other facets, the legislation allowed airlines to establish hubs at specific airports by trading and sharing routes. While Trans World Airlines (TWA) and other airlines had established small hubs previously, the phenomenon took off in the early 1980s. Delta Airlines built a large hub in Atlanta,

<sup>28</sup> "O'Hare International Airport," November 1976, Archival Image Collection M525433, The Art Institute of Chicago: Ryerson & Burnham Archives.

<sup>29</sup> The transfer of operations from Midway was temporary as flights returned to Midway in 1964. "Chicago Department of Aviation | O'Hare and Midway International Airports," *Midway History*, accessed July 31, 2019, <https://www.flychicago.com/business/CDA/Pages/Midway.aspx>.

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American Airlines focused its hub at Dallas-Fort Worth, and United Airlines established its major hubs at O'Hare and Denver's Stapleton Airport.<sup>30</sup>

The planning process for United's new terminal to support Chicago as one of its hubs began in 1980.<sup>31</sup> In 1982 the Chicago Department of Aviation (CDA) launched the O'Hare Development Program (ODP) to expand O'Hare's capacity by 1995. The centerpiece of the plan was United's new Terminal 1 building, which would replace the 1955 international terminal. In addition, the ODP included expanding Terminals 2 and 3, building a new international terminal (Terminal 5), a train station for the Chicago Transit Authority (CTA) below the parking garage and hotel, and a "people mover" to transport travelers to more distant parking areas (see Figure 65). During construction efforts a temporary international terminal was established in the first floor of the parking garage. The first phases of the expansion plan were completed in the 1980s with the addition of Concourse L and expansion of Terminal 3 (1984) and the CTA Station (1984). Concourse L, occupied by Delta Airlines, was the first concourse at O'Hare designed specifically as a hub. Delta later shifted its Midwest hub to Cincinnati. Terminal 1 was completed in 1988 and the new international terminal (Terminal 5) opened in 1993, marking the end of the ODP phase of improvements.<sup>32</sup>

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<sup>30</sup> Leonard R. Bachman, *Integrated Buildings: The Systems Basis of Architecture* (Hoboken, N.J.: John Wiley & Sons, 2003), 220; "The Fascinating History of Chicago's O'Hare International Airport 1920-1960"; "Chicago O'Hare Airport Becomes America's Busiest Airport Again," *International Airport Review*, February 6, 2019, <https://www.internationalairportreview.com/news/80867/ohare-americas-busiest-airport/>.

<sup>31</sup> Brodherson, "All Airplanes Lead to Chicago: Airport Planning and Design in a Midwest Metropolis," 92.

<sup>32</sup> "The Fascinating History of Chicago's O'Hare International Airport 1920-1960"; Robert Davis, "United Plans \$100 Million New Terminal at O'Hare," *Chicago Tribune*, September 20, 1980; David Young, "United Plans New O'Hare Terminal," *Chicago Tribune*, December 10, 1982; John Camper, "O'Hare Project Picks up: Expansion Enters Peak Year of Construction," *Chicago Tribune*, March 1, 1987; O'Hare Associates, "Progress Report, Chicago-O'Hare International Airport Development Program, June 1984," 1; Gary Washburn, "World at City's Doorstep as New O'Hare International Terminal Takes Wing," *Chicago Tribune*, May 28, 1993.

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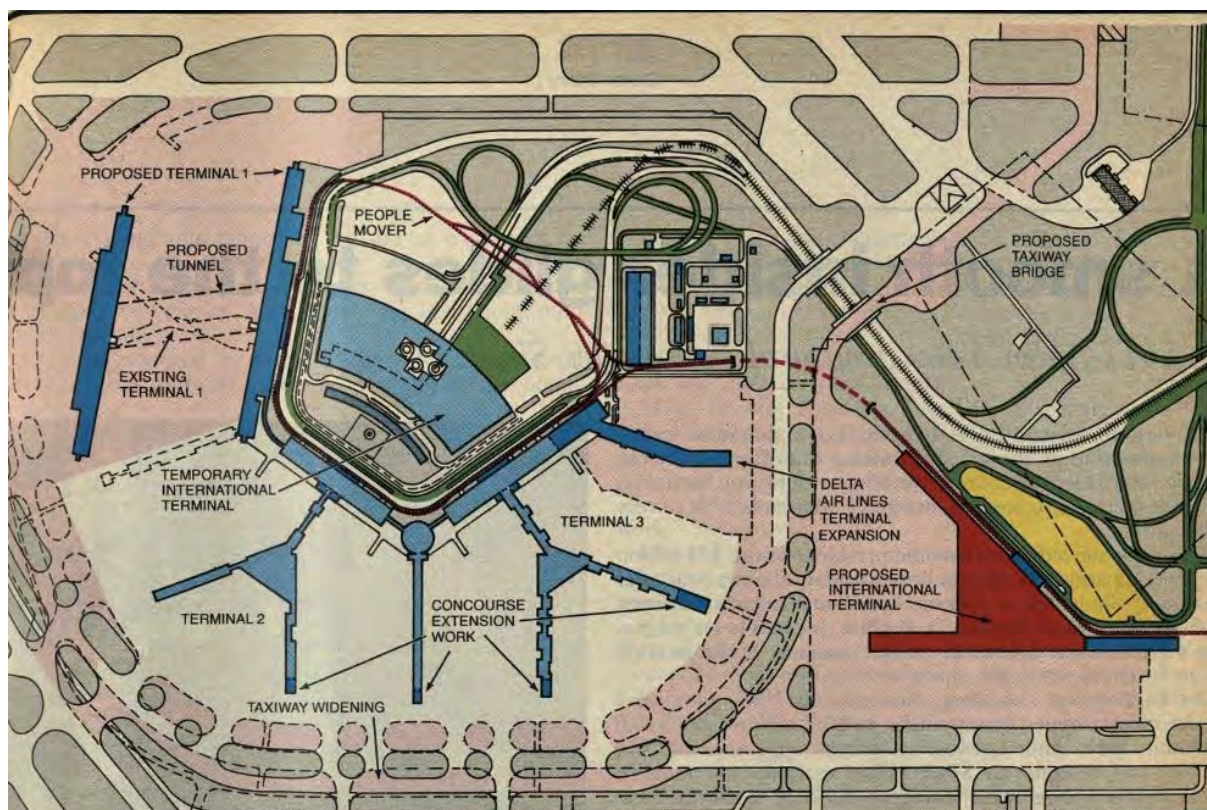


Figure 65. Overview of O'Hare Development Program, 1984.<sup>33</sup>

Further improvements to O'Hare included the construction of three FAA control towers: the Main Control Tower built in 1996 near the present CDA control tower, the North Control Tower in 2008, and the South Control Tower in 2015. In 2005 the main facades of Terminals 2 and 3 were extended and a consistent roadside canopy was constructed across all three terminals, replacing the original canopy outside Terminal 1. The most recent addition to O'Hare was the construction of the "stinger" gates in 2018 as an addition to Concourse L, which added five gates.<sup>34</sup>

<sup>33</sup> "O'Hare Airport Expansion Takes Off," *Engineering News-Record* 212, no. 19 (May 10, 1984): 27.

<sup>34</sup> Janan Hanna, "Busiest Airport Lands in the Future," *Chicago Tribune*, October 1, 1996, sec. 2; John Hilkevitch, "\$65 Million Tower to Give New Bird's Eye View for Controller," *Chicago Tribune*, October 8, 2008, sec. 1; "American Airlines Celebrates Opening of Five New Gates at Chicago O'Hare," *American Airlines Newsroom*, May 11, 2018, <http://news.aa.com/news/news-details/2018/American-Airlines-Celebrates-Opening-of-Five-New-Gates-at-Chicago-OHare/default.aspx>.

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## B. Design and construction of Terminal 1

### (1) Design

In 1978 the Airline Deregulation Act resulted in several changes to air travel detailed in Section 2.D.(3) that would come to influence airport design. Deregulation affected O'Hare in two major ways: an increase in passengers passing through on connecting flights and scheduling a greater number of flights.<sup>35</sup> The long walks between terminals faced by connecting passengers influenced a new design for larger concourses with more amenities in which passengers could spend their layovers without leaving the concourse. With the increase in the number of flights with overlapping arrivals and departures, the older "split-finger" terminal configuration at O'Hare and other airports became problematic because it resulted in increased taxiing times and aircraft delay. In addition, the size of aircraft had steadily increased since the 1960s, carrying more passengers and requiring more airside maneuvering space.<sup>36</sup> The increase in aviation activity paired with the increased circulation requirements of both passengers and aircraft and the growing size of aircraft, persuaded officials at United and O'Hare that a new hub terminal was necessary that could meet these new demands of air travel.

With the agreement of United Airlines, the CDA hired O'Hare Associates as Supervising Consultant for the Terminal 1 project. O'Hare Associates was a joint venture led by Murphy/Jahn (previously C.F. Murphy & Associates).<sup>37</sup> C.F. Murphy & Associates had built a strong relationship with the City in its work at O'Hare and other projects for the City beginning in the 1950s through the 1980s. German-born architect Helmut Jahn joined the firm in 1967 and worked his way to co-owner in 1982, when the firm's name was changed to Murphy/Jahn. Working from a central project office established at Murphy/Jahn, in late 1981 O'Hare Associates began to establish project components and configurations based on the proposed Airport Layout Plan.<sup>38</sup> United Airlines soon selected A. Epstein and Sons, Inc., to provide design development services.<sup>39</sup> The City and United Airlines reached agreement in June 1984 regarding the scope, configuration and funding for Terminal 1, and authorized Epstein to proceed with design development drawings.<sup>40</sup> Though articles of the period, as well as interviews with Jahn, recognize Jahn as the designer of Terminal 1, ODP monthly progress reports note that A. Epstein & Sons prepared design development drawings.

Although CDA was the "legal and technical client," United made all final decisions regarding the design and construction of the new terminal. Murphy/Jahn was granted broad artistic license but the terminal's

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<sup>35</sup> *Airport Cooperative Research Program Report 25, Airport Passenger Terminal Planning and Design, Volume 1: Guidebook* (Washington, D.C.: Transportation Research Board, 2010), 8.

<sup>36</sup> Bachman, *Integrated Buildings: The Systems Basis of Architecture*, 220.

<sup>37</sup> Allen L. Pomeracne, "O'Hare's Showstopper Terminal," *Civil Engineering (New York)* 57, no. 11 (1987): 40–43.

<sup>38</sup> O'Hare Associates, "Progress Report, Chicago-O'Hare International Airport Development Program, December 1981," December 1981, cover letter, 1.

<sup>39</sup> O'Hare Associates, "Progress Report, Chicago-O'Hare International Airport Development Program, December 1983," December 1983, 5, 23.

<sup>40</sup> O'Hare Associates, "Progress Report, Chicago-O'Hare International Airport Development Program, June 1984," 3.



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design ultimately represented a “hard-nosed business decision” for United more than a desire to make an architectural statement.<sup>41</sup> As United vice president Anthony Chaitin stated in 1988:

The most important thing was that the terminal had to work...We wanted something spectacular, but it just flat had to work. We had to be able to get passengers between the two farthest gates within a reasonable time. We had to have room for baggage handling, space for passenger check-in and plenty of curb frontage. The design had to meet these requirements. Otherwise, we could have a great building that didn't do the job.<sup>42</sup>

Jahn's design was completed within United's constraints, including the ticketing counters' proximity to the curb, distance between the concourses, and the height of the structures not obstructing the view of the airfield from the original control tower (see Figure 66). United desired two concourses connected by an underground tunnel, as opposed to the “Y” shape of the older terminals at O'Hare. A similar strategy had recently been employed at Atlanta's Hartsfield-Jackson Airport's “midfield terminal complex” that opened in 1980. United's plan offered travelers a satellite concourse for connecting flights, allowed aircraft to pass one another on the taxiway between the concourses, and increased the number of gates available to United from 30 to 45. Describing the design process, Jahn stated, “there was always this temptation to making the building bigger, but then the airline movement, the airplane movement, was jeopardized.”<sup>43</sup> The primary terminal building and concourse, Concourse B, was designed to ease the flow of passengers through the ticketing process and reduce the distances between taxiways and aircraft gates. A satellite concourse, Concourse C, would serve passengers on connecting flights, reducing connections in other concourses.<sup>44</sup>

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<sup>41</sup> Camper, “O'Hare Project Picks up: Expansion Enters Peak Year of Construction”; Jim Murphy, “A Grand Gateway: United Airlines Terminal,” *Progressive Architecture* 68, no. 12 (November 12, 1987): 100; Brodherson, “All Airplanes Lead to Chicago: Airport Planning and Design in a Midwest Metropolis,” 90–92; Gary Washburn, “United Plans a Futuristic Terminal,” *Chicago Tribune*, January 17, 1985.

<sup>42</sup> Gordon Wright, “United Takes off with ‘Terminal for Tomorrow,’” *Building Design and Construction* 29, no. 5 (May 1988): 122.

<sup>43</sup> Donna Robertson and Hamza Walker, *Oral History of Helmut Jahn* (Chicago: The Art Institute of Chicago, 2014), 44.

<sup>44</sup> “O'Hare Airport Expansion Takes Off,” 27; “History of ATL,” *Hartsfield-Jackson Atlanta International Airport*, 2019, <https://www.atl.com/about-atl/history-of-atl/#1458248408627-895c479b-e6cd>; Young, “United Plans New O'Hare Terminal”; Paul Goldberger, “An Air Terminal Inspired by The Train Station,” *New York Times*, August 23, 1987; Murphy, “A Grand Gateway: United Airlines Terminal,” 100.

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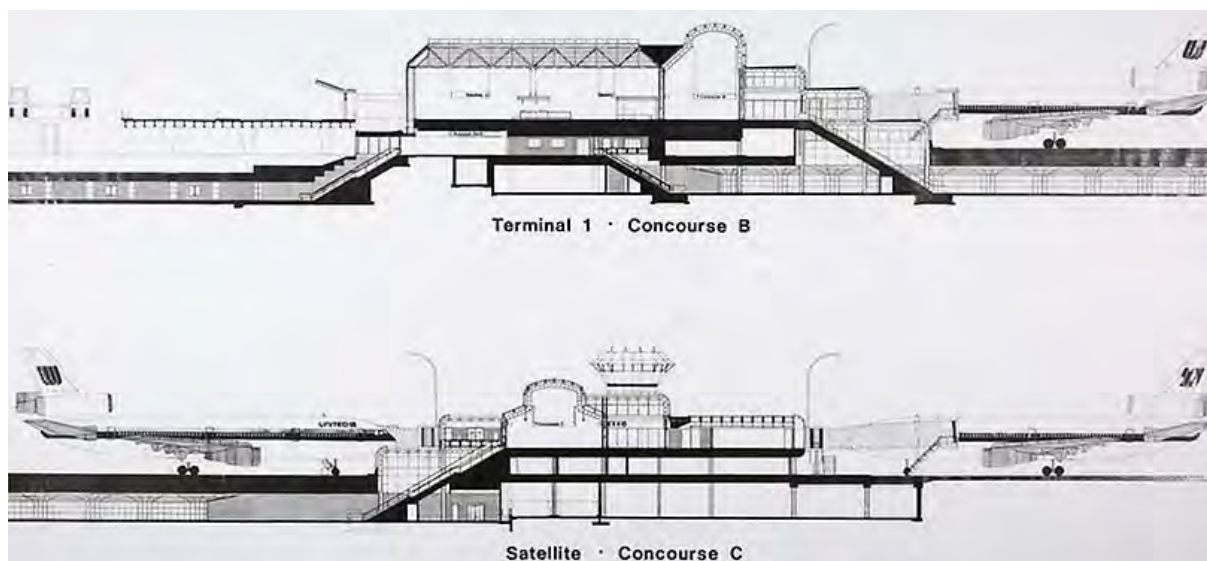


Figure 66. Profile view of design for Terminal 1, c. 1985.<sup>45</sup>

Helmut Jahn's goal for the new terminal was to "create a grand public space" that would serve as a gateway to Chicago that stood apart from typical airport buildings of the time.<sup>46</sup> In Jahn's own words, "Airports are gateways to cities. They should reflect the excitement, the spirit of that passage."<sup>47</sup> The final design was an expansive, barrel-vaulted, postmodern glass and steel structure influenced by the great greenhouses and trains stations of the nineteenth century. Describing the design process, Jahn stated, "We emphasized light and space to evoke the fantasy and adventure that used to be associated with air travel...Our expansive use of glass was actually inspired by turn-of-the-century railway stations, greenhouses and exhibition halls that treated structure, movement and light in celebratory ways."<sup>48</sup> Jahn also worked to create a sense of continuous flow between entering the terminal and boarding an aircraft through an intentional scaling of space from the wide ticketing area to the tall but narrow concourses leading to smaller hold rooms with lower ceilings and ultimately the confined space of the aircraft.<sup>49</sup>

#### (2) Construction and features of Terminal 1

Construction of Terminal 1 began in 1986 and was planned to be completed by 1988. Before construction began, the 1955 international terminal was demolished, and the temporary international terminal was in the parking garage. United accelerated the construction schedule in 1987 to open the terminal by the end of the summer. The first 13 gates at Terminal 1 were opened in June 1987, and the terminal officially opened in August of that year with all but the southern ends of both concourses completed. The concourses were fully constructed in 1988, by which time United had already outgrown its new terminal, relying on gates in Terminal 2 to handle delayed flights. Terminal 1 ultimately cost more than \$500 million

<sup>45</sup> Murphy/Jahn Architects, "United Airlines Concourses B and C, O'Hare International Airport, Chicago, Section," 1982-1988, RX21217/2, The Art Institute of Chicago.

<sup>46</sup> Washburn, "United Plans a Futuristic Terminal."

<sup>47</sup> Donna Green, "Chicago: Terminal of the Future," *ID: Magazine of International Design* 35, no. 1 (January 1988): 49.

<sup>48</sup> Green, "Chicago: Terminal of the Future," 51; Washburn, "United Plans a Futuristic Terminal."

<sup>49</sup> "Interview with Helmut Jahn," *ArchIdea*, 2005, 10.

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to construct. When finished, the structural design of the terminal was complemented by technological advancements as detailed below. As one of United's spokespeople, Tom Germuska, claimed, "We are at the leading edge of technology for aviation."<sup>50</sup>

Structural engineer Lev Zetlin, known for his work with Philip Johnson on the "Tent of Tomorrow" for the 1964 World's Fair in New York City, implemented Jahn's design for an exposed steel structure within the terminal. Exposed steel had never been used in an airport terminal design and required a change to Chicago's building code after the designers ensured that the entire space would be fully sprinklered and constantly monitored for fire alerts. The Chicago building code was rewritten to resemble Illinois's building code, which allowed for exposed steel with sprinklers in covered malls, including airports. The exposed steel structure was incorporated throughout the terminal. In the ticketing area, the sawtooth-patterned roof above is composed of 54 exposed metal trusses. The barrel-vaulted arches of the concourses' circulation spines were welded prior to installation in the building and are supported by columns of steel pipe with intermittent lateral supports (see Figure 67). The exposed steel provides both the structural integrity as well as the architectural detail and flourish of the building. As such, extreme care was taken in the aesthetic and structural design of each connection point.<sup>51</sup>

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<sup>50</sup> Young, "United Plans New O'Hare Terminal"; Camper, "O'Hare Project Picks up: Expansion Enters Peak Year of Construction"; "Terminal to Debut at O'Hare," *Chicago Tribune*, June 15, 1987; Gary Washburn, "United Looks to a Rosy Future with New Terminal at O'Hare," *Chicago Tribune*, August 3, 1987; Carol Jouzaitis, "United Set to Finish Terminal," *Chicago Tribune*, December 12, 1988.

<sup>51</sup> Bruce Lambert, "Lev Zetlin, 74, an Expert on Structural Disasters," *New York Times*, December 5, 1992, <https://www.nytimes.com/1992/12/05/obituaries/lev-zetlin-74-an-expert-on-structural-disasters.html>; Murphy, "A Grand Gateway: United Airlines Terminal," 102; Charles H. Thornton et al., "United Airlines - O'Hare: Framed for Tomorrow," *Modern Steel Construction* 27, no. 5 (September 1987): 6, 12.; John Devlin, phone interview with Mead & Hunt, Inc., June 11, 2019.

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Figure 67. Pre-welded exposed steel structure of Concourse C during construction, 1986.<sup>52</sup>

A. Epstein and Sons, Inc., prepared design drawings for unexposed structure, mechanical, electrical, plumbing and fire protection.<sup>53</sup> The automated mechanical systems, once complete, were described as “one of the country’s largest and most sophisticated computerized building management systems.”<sup>54</sup> Thermostats were installed in each hold room to regulate the temperature in areas where passengers congregate for a relatively brief period of time during boarding, rather than maintaining a constant temperature throughout the entire concourse. According to Epstein’s plan, the lack of heat retention in the glass ceiling would allow temperatures within the terminal to normalize quickly. The air intakes are built into the structure above the hold rooms and outflow is directed through perforated panels in the hold room ceilings. Zetlin’s design also utilizes fresh air triggered by sensors in the window mullions to control condensation on the interior of the glass.<sup>55</sup>

Sylvan R. Shemitz and Associates designed Terminal 1’s unique lighting system to maintain consistent illumination, reduce the brightness of the ceiling, and minimize glare by seamlessly integrating natural and artificial light. During the day almost no artificial light is required. In the ticketing area and hold rooms a combination of skylights and “gullwing”-shaped light diffusers evenly illuminate these spaces.

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<sup>52</sup> Thornton et al., “United Airlines - O’Hare: Framed for Tomorrow,” 8.

<sup>53</sup> O’Hare Associates, “Progress Report, Chicago-O’Hare International Airport Development Program, June 1984,” 18.

<sup>54</sup> Robert Neary, “Automation Plays a Major Role in M/E System Control,” *Consulting-Specifying Engineer* 5, no. 2 (February 1989): 60.

<sup>55</sup> Neary, “Automation Plays a Major Role in M/E System Control,” 60–63.



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The concourses' circulation spines are naturally lit through the glass ceiling. The alternating fritted glass panels in the barrel-vaulted circulation spines and ticketing area partially diffuse the light and limit solar heat gain. At night these spaces are illuminated by hanging lights shining upwards onto reflective aluminum panels; this reflects light to the fritted glass panels, which in turn reflect downwards to the terrazzo floor. A third function of the fritted glass is to prevent a "black mirror" of glass on the ceiling at night. In the hold rooms and ticketing area artificial lights mimic the daytime indirect lighting.<sup>56</sup>

Michael Hayden designed the neon sculpture illuminating the ceiling of the tunnel between Concourses B and C, entitled "Sky's the Limit." By the 1980s Hayden was known for his "lumetric sculpture" commissions around the world. While Hayden designed the lights in the ceiling, Jahn designed the walls of the tunnel in the form of abstracted trees, which are reminiscent of the larger undulating panels in the 1984 O'Hare Chicago Transit Authority (CTA) station, which he also designed. The lighted effect on the wall panels is achieved by front-lighting painted walls, which reflect the light outward through the translucent panels. William Kraft composed an original piece of electronic music specifically for the O'Hare tunnel. Kraft was a percussionist and member of the Los Angeles Philharmonic, where he founded that orchestra's Percussion Ensemble and New Music Group.<sup>57</sup>

One truly innovative aspect of the Terminal 1 design is an automated aircraft parts delivery system, the first of its kind in any airport. Previously, repair parts were manually delivered to the airfield, often taking up to 30 minutes for a single part. With the current system, requested parts are located automatically among 4,000 storage locations in a central bank within the basement level housing up to 100,000 parts. The parts are then delivered through pneumatic tubes or in motorized containers along a 6,000-foot monorail system directly to the airfield (see Figure 68). Automated delivery decreased the average wait time to 11 minutes, significantly reducing maintenance-related delays at the gates.<sup>58</sup>

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<sup>56</sup> Sylvan R. Shermitz, "Lighting the Way," *Architectural Record* 175, no. 13 (November 1987): 65–66; Joseph R. Knisley, "Lighting a 21st Century Airline Terminal," *Electrical Construction and Maintenance* 87, no. 12 (November 1988): 148–50; Nora Richter Greer, "Soaring Spaces That Celebrate Travel," *Architecture: The AIA Journal* 77, no. 5 (May 1988): 160.

<sup>57</sup> Rudi Stern, *Contemporary Neon* (New York: Retail Reporting Corporation, 1990), 48; "Sculptor in Light," *Thinking Lightly, Inc.*, n.d., <http://www.thinkinglightly.com/hayden/index.html>; Bangert Projects, "Helmut Jahn Talks about the O'Hare Passenger Tunnel in Chicago," *YouTube*, November 28, 2012, <https://www.youtube.com/watch?v=YWBvDD3y1Jc&t=1s>; David Schwartz and Eve McPherson, "William Kraft," *Music Academy Online*, n.d., <https://www.musicacademyonline.com/composer/biographies.php?bid=123>.

<sup>58</sup> Karen A. Auguston, "Parts Delivery System Takes off at O'Hare Int'l Airport," *Modern Materials Handling* 44, no. 12 (October 1989): 52; Washburn, "United Looks to a Rosy Future with New Terminal at O'Hare."

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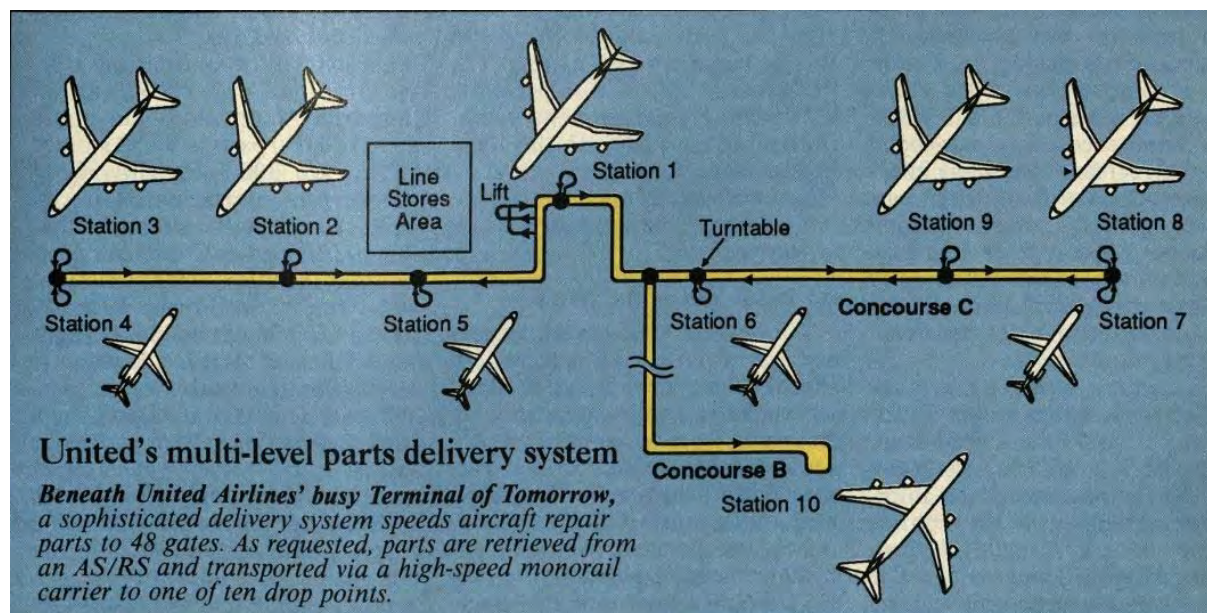


Figure 68. Diagram of the automated parts delivery system. The central storage area is located in the basement below Concourse C and the monorail delivers parts to stations in Concourses B and C.<sup>59</sup>

United also installed a new computerized baggage handling system in Terminal 1, which automatically sorts luggage by scanning an attached barcode. Consisting of seven miles of conveyor belts below the main concourse levels, the computerized system increased baggage handling capabilities from 70 bags a minute to 480 bags a minute. This system was critical to the efficiency of United's primary hub, but it was not the first of its kind. Other airlines were developing similar systems at the time, and American Airlines began using its own computer-based baggage handling system at O'Hare by early 1987, months before Terminal 1 opened.<sup>60</sup>

As with many new buildings, the new terminal had performance issues upon completion, including leaks and glare from the glass walls. Due to the advanced schedule to open the building before the fall of 1987, the window caulking was incomplete when passengers first arrived. In those first days Chicago received a record breaking 13 inches of rain, resulting in serious leaks throughout the concourses. Although the caulking was later completed, leaks from the glass ceiling have remained an issue inside the concourses. In addition, serious glare from the roof and windows made it difficult to see for air traffic controllers, as well as ticketing agents in the main entryway. This problem was temporarily fixed by installing shades and tinting specific windows, and resolved more permanently by acid-etching the panels that were causing the

<sup>59</sup> Auguston, "Parts Delivery System Takes off at O'Hare Int'l Airport," 53.

<sup>60</sup> Ira P. Krepchin, "High Speed Sorting Guides Baggage at Bustling Airport," *Modern Materials Handling* 42, no. 3 (March 1987): 66-69; Camper, "O'Hare Project Picks up: Expansion Enters Peak Year of Construction"; Washburn, "United Looks to a Rosy Future with New Terminal at O'Hare"; Stanley Ziemba, "Jewel in United's Crown, Huge O'Hare Terminal Is a Trip in Itself," *Chicago Tribune*, February 9, 1992.

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glare (see Figure 69). Another issue was the unexpected heat retention within the “banana gates” and ticketing area, which was addressed with the installation of large ceiling fans in those areas.<sup>61</sup>



Figure 69. Acid-etched glass panel on exterior of Terminal 1.<sup>62</sup>

### (3) Critical reception

Upon completion, Jahn's Terminal 1 received wide critical acclaim in the press and professional journals as a visually stunning display of airport architecture. As Donna Green wrote in 1988 in *ID: Magazine of International Design*, “The United Terminal has clearly raised the standards for airport design in the future.”<sup>63</sup> In 1987 Paul Goldberger of the *New York Times* noted how well Jahn's design complemented the historical homage to the train stations of the past with modern engineering and technology:

Given how wretched most airports are, and how glorious most 19<sup>th</sup>-century train stations were, there is a pleasing irony to the fact that our era's most ambitious work of airport architecture should look to the train station for inspiration, at least so far as the appearance of its structure is concerned. The United terminal does not look back literally, of course – this is a building rich in the technological advances of our time, and its sleek appearance and layout assure that it could hardly be mistaken for anything old. But the high-tech esthetic of today has always owed a debt to the train sheds of the 19<sup>th</sup> century, and that debt is acknowledged with particular grace in this building's exhilarating form.<sup>64</sup>

<sup>61</sup> Pomeracne, “O'Hare's Showstopper Terminal,” 43; Murphy, “A Grand Gateway: United Airlines Terminal,” 104; Michelle Norris and Gary Washburn, “United's New Terminal Turns out to Be O'Hare Spellbinder,” *Chicago Tribune*, n.d.

<sup>62</sup> Mead & Hunt photograph.

<sup>63</sup> Green, “Chicago: Terminal of the Future,” 51.

<sup>64</sup> Goldberger, “An Air Terminal Inspired by The Train Station.”

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Goldberger, along with other critics, compared Terminal 1 with Eero Saarinen's terminals at JFK Airport in New York City and Dulles Airport in Washington, D.C., calling it, "Unquestionably the most ambitious effort at airport architecture since Saarinen."<sup>65</sup> Nora Greer, writing for the American Association of Architecture in 1988, argued that Terminal 1 was most comparable to Saarinen's work "in the clarity of detail, the skillful use of materials, the brilliant execution, and the search for an original, dynamic design esthetic."<sup>66</sup> Greer also praised the decorative use of the exposed steel structure, writing, "A meticulous joining of steel part – what some might consider a mundane task – enriches the entire composition."<sup>67</sup> Jim Murphy echoed this sentiment in *Progressive Architecture* in 1987, stating "Joints, brackets, and end conditions have been taken past that point where they merely work, to become abstract sculpture."<sup>68</sup> Jahn's use of exposed steel in Terminal 1 was also highly influential in later airport construction and can be seen in nearly every airport constructed since, including Jahn's own later airport designs. As architectural historian Terri Meyer Boake argued in 2015, "O'Hare was a remarkable deviation from the established tradition of reinforced concrete use in airport design...the use of exposed steel at O'Hare was effective in setting a precedent for this rapidly expanding building type."<sup>69</sup>

Hayden and Jahn's underground light sculptures received extra recognition in contemporary reviews as a truly unique and creative feature within the terminal. Paul Gapp, writing for the *Chicago Tribune*, called it "A bold yet simultaneously delicate environment."<sup>70</sup> Many of the first travelers through the tunnel found it to be genuinely enjoyable. As one traveler described the experience in 1987, "Rather than being shuttled through cattle chutes, you are entertained for a change."<sup>71</sup> However, some found the experience to be overwhelming, particularly in response to Kraft's electronic soundscapes. The most vocal critic was *Chicago Tribune* columnist Bob Greene, who felt that the music specifically was too abstract and "funereal" for an airport. In 1987 Green wrote, "I am supposed to make my living with words, but I am at a loss to try to tell you what this "music" sounds like...It is so weird, spooky, bizarre and disorienting that – combined with the flashing neon – it has the effect that a person must undergo when he has taken an overdose of dangerous drugs."<sup>72</sup> United took these criticisms to heart, and within a year Kraft's piece was replaced with another electronic piece by Gary Fry, "Rhapsody Ambience," a recording of Gershwin's "Rhapsody in Blue", which the airline had used in other marketing campaigns.<sup>73</sup>

Terminal 1 received multiple awards in the years following its completion. The American Institute of Architects (AIA) has bestowed several honors on Jahn's Terminal 1 design, including a National Honor

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<sup>65</sup> Goldberger, "An Air Terminal Inspired by The Train Station."

<sup>66</sup> "Jahn's United Terminal Wins R.S. Reynolds Award," *Architecture: The AIA Journal* 77, no. 6 (June 1988): 22.

<sup>67</sup> Greer, "Soaring Spaces That Celebrate Travel," 160.

<sup>68</sup> Murphy, "A Grand Gateway: United Airlines Terminal," 104.

<sup>69</sup> Terri Meyer Boake, *Architecturally Exposed Structural Steel* (Basel, Switzerland: Birkhauser Verlag, 2015), 19–20.

<sup>70</sup> Paul Gapp, "Oh, Boy! O'Hare!," *Chicago Tribune*, October 4, 1987.

<sup>71</sup> Norris and Washburn, "United's New Terminal Turns out to Be O'Hare Spellbinder."

<sup>72</sup> Robert Bruegmann, "Art and Life Under the Runways: United's O'Hare Tunnel," *Twentieth-Century Art & Culture* 1, no. 1 (1989): 11.

<sup>73</sup> Robert Bruegmann, "Art and Life Under the Runways: United's O'Hare Tunnel," 11–12.



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Award in 1987, one of its highest honors.<sup>74</sup> Terminal 1 also received the AIA's Divine Detail award in 1990, which "recognizes instances where the expression of architectural theory becomes an artistic medium."<sup>75</sup> The building was further recognized with the R.S. Reynolds Memorial Award, bestowed by the AIA and the Reynolds Metal Company since 1956 for "outstanding use of aluminum" in a building. For the Reynolds award, the AIA described Jahn's design as an:

outstanding example of public architecture that celebrates in late-20<sup>th</sup>-century terms much of the same splendor captured in the best of grand railway terminals of the late 19<sup>th</sup> century...Jahn's terminal is a highly expressionistic building that incorporates finely crafted contemporary materials and well-organized open spaces.<sup>76</sup>

In 1991 Terminal 1 was included in the AIA's list of the "Best American Architectural Works Since 1980," a list compiled by more than 800 architects.<sup>77</sup>

#### (4) Helmut Jahn

Helmut Jahn was born in Nurnberg, Germany, in 1940. His architectural training in Germany emphasized practical and technical skills over adherence to a particular style or theory. In 1966 Jahn moved to the United States and enrolled in the architecture program at the Illinois Institute of Technology (IIT). IIT was the center of the "Second Chicago School" of architecture, which embraced adherence to Ludwig Mies van der Rohe's (commonly referred to as Mies) practices of modernist design, referred to as Miesian. While studying at IIT Jahn was hired by C.F. Murphy Associates as an assistant to the architect Gene Summers. Summers was trained by Mies and was devoted to the modernist principles of the Second Chicago School. Jahn, on the other hand, gained a reputation for being more flexible in his designs. By 1973 Jahn was promoted to Executive Vice President and Director of Planning and Design within C.F. Murphy Associates and spent the remainder of the decade expanding the firm's stylistic range on multiple projects around the United States, but particularly in Chicago. As architectural historian Ross Miller argued, "Within the framework of C.F. Murphy's bread-and-butter civic commission of the 1970s, Jahn methodically renewed the firm and established his own reputation."<sup>78</sup>

The earliest of Jahn's works to receive wide critical acclaim were the Kemper Arena in Kansas City (1974) and the Michigan City Library (1977), in which he employed different techniques to subvert the standard Miesian box architecture. With the Kemper Arena, Jahn employed rounded corners in addition to three massive, 27-foot-deep, exposed steel trusses on the exterior building, inspired by the high-tech architecture of Norman Miller. In Michigan City he designed a simple, single-story, rectangular-plan library building, but incorporated vertical skylights into a large sawtooth pattern roof to illuminate the interior

<sup>74</sup> "Awards," *JAHN*, n.d., <https://www.jahn-us.com/awards>.

<sup>75</sup> Paul Gapp, "Winning Designs: Chicago Awards Recognize a Respect for Basics," *Chicago Tribune*, November 25, 1990.

<sup>76</sup> "Jahn's United Terminal Wins R.S. Reynolds Award."

<sup>77</sup> "Set up \$25,000 Award for Top Architects," *Chicago Tribune*, November 13, 1956; Paul Gapp, "Peak Performances: U.S. Architects Put the 'second City' in First Place," *Chicago Tribune*, October 20, 1991; "Arkansas Sanctuary Chosen as Nation's Best Design," *The Montgomery Advisor*, November 30, 1991.

<sup>78</sup> Ross Miller, "Helmut Jahn and the Line of Succession," in *Chicago Architecture and Design 1923-1993: Reconfiguration of an American Metropolis* (Chicago and Munich: The Art Institute of Chicago and Perstel-Verlog, 1993), 307.

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space. Both projects were recognized with awards from the AIA and established Jahn as a forward-thinking architect able to expand his stylistic range with each project. In the early 1980s Jahn became a co-owner of C.F. Murphy Associates and changed the firm's name to Murphy/Jahn. During this period Jahn designed multiple postmodern-inspired buildings across the United States and internationally.

In contrast to other prominent architects associated with postmodernism, such as Robert Venturi and Philip Johnson, Jahn has not ascribed himself specifically to this design philosophy. The motif throughout his career has been the use of unique engineering features made transparent and visible to the extent that the engineering becomes the style of the building. In his own words, "There's a formal idea...but that alone isn't what the building is...the building becomes almost a diagram of itself, you can read every part, you can see how every part is put together."<sup>79</sup> Despite this, Jahn has often been described as a prominent postmodern architect evidenced by a distinct phase in Jahn's career in which he incorporated overt historic references into the designs of several buildings in the Chicago Loop. The most famous of these is the State of Illinois Center (1984, later renamed the James R. Thompson Center), in which he subverted the classical dome, a common symbol of democratic government in the United States, into a modern public space incorporating a glass interior and exterior to highlight the transparency of public office. Another notable example is the 1980 addition to the Chicago Board of Trade building in which the original's Art Deco exterior and interior designs are mimicked with modern steel and glass curtain walls. Similar to these examples, Terminal 1 includes historical references with its design that reflects not only nineteenth-century greenhouses and train sheds, but also Chicago's history as a major railroad hub. Although Jahn has tended to focus on the engineering aspects of his buildings, these Chicago buildings clearly reflect the themes of symbolism and rejection of the confines of modernism inherent to the postmodern movement.<sup>80</sup>

During the 1980s Jahn's international reputation grew with the design of two skyscrapers in South Africa: the Diagonal Building (1983) in Johannesburg modeled after the appearance of a cut diamond, and 362 West Street in Durban (1983), which also features an exposed exterior structural frame. In the 1990s and 2000s Jahn focused much of his work in Europe, increasing his international reputation and influence. The most famous of his works from this era is the Sony Center (2000) in Berlin, which features multiple structures of lightweight glass and steel built around a central open-air "Forum" covered by a large tent-like roof structure. Jahn again received multiple awards for the Sony Center from the AIA and Urban Land Institute, as well as the Deutsche Immobilien Fonds AG award, a German competition recognizing new construction offering "outstanding quality of life."<sup>81</sup> In 2012 Jahn changed the name of the firm again to JAHN.<sup>82</sup>

<sup>79</sup> Robertson and Walker, *Oral History of Helmut Jahn*, 5.

<sup>80</sup> Robertson and Walker, *Oral History of Helmut Jahn*, 11.

<sup>81</sup> "Awards"; "DIFA-AWARD to Recognize Europe's Best Quarters (DE)," *REP: Europe Real Estate*, June 2, 2005, <http://europe-re.com/difa-award-to-recognise-europe-s-best-quarters-de/34940>.

<sup>82</sup> Nory Miller, *Helmut Jahn* (New York: Rizzoli, 1986), 8; Franz Schulze, "Life and Work," in *Helmut Jahn: Process Progress* (Basel, Switzerland: Birkhauser Verlag, 2013); "Ten Projects by Murphy/Jahn," *GA Document*, no. 7 (August 1983): 124, 126; Aaron Betsky, "Towers and Bessels in Grids and Curves: Perspectives on the Work of Helmut Jahn," in *Helmut Jahn: Buildings 1975-2015* (Munich: Schirmer/Mosel, 2015), 12.

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Jahn also continued his work in aviation design during the 1990s and 2000s. The most prominent of these projects are the Munich Airport Center (1997), the Cologne/Bonn Airport Terminal 2 (2002), and the Suvarnabhumi International Airport in Bangkok (2006). For the Munich Airport Center, Jahn developed a master plan for the airport and constructed a five-story atrium between a new hotel and the terminal buildings. At Cologne, Jahn designed Terminal 2 with features similar to O'Hare's Terminal 1. The terminal is fronted with a bi-level roadway, and the facades are comprised of a continuous 70-foot-high curtain wall on all sides. Instead of repeating Terminal 1's barrel-vaulted concourses, the Cologne terminal is capped with a glass sawtooth-pattern roof, reminiscent of Terminal 1's ticketing area, supported by steel members branching out from central columns placed in the interior of the building. In contrast, the Bangkok airport design expands further on Terminal 1's vaulted corridors to create tubes of glass and steel extending from the central terminal. Each of these airport design's display variations in Jahn's ideals of transparency and open space in public architecture.<sup>83</sup>

Critical reviews of Jahn's work have consistently identified his role as an influential architect treading stylistically between postmodernism and late modernism. In 1981 Grace Anderson wrote in *Architectural Record*, "Jahn acknowledges a certain eclecticism of intellectual and intuitive approaches to design, calling on such contemporary concepts as symbolism and historical reference as well as on the functional analysis as he needs them to devise and refine a building's form."<sup>84</sup> Similarly, Fulvio Irace, in the Italian journal *Domus*, wrote in 1985, "It might be said that by clipping the wings of an over-theoretic experimentalism and those of a cynically accommodating pragmatism, Jahn has appeased the public's appetite for images as well as the need for monuments felt by cities."<sup>85</sup> In 2002 architecture critic Michael J. Crosbie described Jahn as "a willing heir to the spirit of innovation that marks the best of modernism."<sup>86</sup>

In recent years Jahn has begun to receive recognition as an important and influential U.S. and international architect. In addition to his many awards, Jahn has been the subject of multiple monograph publications as well as feature articles in both scholarly and popular publications. In recognition of his contribution to American architecture, Jahn was presented in 2012 with a lifetime achievement award from the Chicago chapter of the AIA, representing architectural firms based in Chicago. In 2012, biographer Franz Schulz described Jahn's importance to Chicago and the world: "Helmut's importance is international. What he's done for Chicago adds to the exceptional reputation that the city has as a place where architects have built and lived."<sup>87</sup> Although he has been praised for his many skyscrapers, Jahn's public spaces have also garnered a certain retrospective attention. In 2015, Aaron Betsky described these spaces as "not so much graceful as they are exciting, incomplete, and full of life and light. Standing inside them, you are always aware of both the building's mass around you and the structure that makes

<sup>83</sup> Jahn, *Airports*, 128; Jan Otakar Fischer, "Terminal Two, Cologne/Bonn Airport," *Architectural Record* 191, no. 8 (August 2003): 126, 131; Schulze, "Life and Work."

<sup>84</sup> Grace Anderson, "Three Designs by Murphy Jahn," *Architectural Record* 169, no. 16 (December 1981): 61.

<sup>85</sup> Fulvio Irace, "Helmut Jahn: Building for the Community," *Domus*, December 1985, 22.

<sup>86</sup> Michael J. Crosbie, "The New Modernism of Helmut Jahn," *Architecture Week*, July 17, 2002, [http://www.architectureweek.com/2002/0717/design\\_1-1.html](http://www.architectureweek.com/2002/0717/design_1-1.html).

<sup>87</sup> Black Spectacles, "Helmut Jahn: AIA Chicago Lifetime Achievement Award - 2012," *YouTube*, October 16, 2017, <https://www.youtube.com/watch?v=53ZoCLQqLSQ>.

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the carving out of a shared environment possible.”<sup>88</sup> Betsky calls out Terminal 1 as “Jahn’s greatest achievement,” and further described it as such:

Other architects have tried to make airports that express flight or imagined waiting areas as grand public spaces; Helmut Jahn was the first to create a terminal that recognizes and celebrates the nuts and bolts of what gets you there, and of the confusion and excitement of modern mass air travel.<sup>89</sup>

### C. Postmodern architecture

Postmodernism can be difficult to define as it spans a range of art forms from architecture to literature to film and manifests in different ways, both across these forms as well as within the confines of a single form. Scholar and theorist Fredric Jameson drew parallels between all the various “postmodernisms” of the late twentieth century and noted several overarching themes or features. The primary theme, contained in the term itself, is the positioning of postmodernism in reaction or opposition to “established forms of high modernism.”<sup>90</sup> In the case of postmodern architecture, the term encompasses the wide spectrum of architectural expressions intended as a rejection of the modern: the work of Le Corbusier, the Miesian and Wrightian schools, the International style, and the sleek, functional buildings it spawned in the post-World War II (postwar) period.

As part of the rejection of the austerity of modernism, postmodernism returned to the use of ornament (particularly with historical reference), and sought to blur the boundaries between “high” and “low” culture, in some cases drawing upon mass/popular culture, kitsch, and the consumer-oriented architecture of advertising and roadside buildings.<sup>91</sup> Art historian Alan Gowans also placed the concept of postmodernism in the context of 1980s pluralism, not only in the practice of blending the contemporary with the historical while clearly distinguishing between the past and present, but also in the respect that modern architecture “is no longer the only possible high style for a new contemporary building.”<sup>92</sup> The following sections summarize the underlying theory and concepts that unify the aesthetically different manifestations of postmodern architecture, discuss several landmark examples, and consider Terminal 1 within this context.

#### (1) Development of postmodernist architecture

In many respects, postmodernism rejected the alienation of modernism that had become pervasive by the late 1960s. At worst, modern architecture was associated with urban renewal, failed mass-housing, or totalitarianism, and at best with a corporate aesthetic that had none of modernism’s earlier revolutionary, futuristic promise.<sup>93</sup> Whereas modernism had strictly forbidden any visual reference to the past, either in ornamental detail or the use of traditional, regional vernaculars, “Postmodern architects

<sup>88</sup> Betsky, “Towers and Bessels in Grids and Curves: Perspectives on the Work of Helmut Jahn,” 12.

<sup>89</sup> Betsky, “Towers and Bessels in Grids and Curves: Perspectives on the Work of Helmut Jahn,” 12.

<sup>90</sup> Fredric Jameson, “Postmodernism and Consumer Society,” in *Postmodern Debates*, ed. Simon Malpas (London: Macmillan Education UK, 2001), 1, doi:10.1057/978-1-137-04505-8\_3.

<sup>91</sup> Jameson, “Postmodernism and Consumer Society,” 1–2.

<sup>92</sup> Alan Gowans, *Styles and Types of North American Architecture: Social Function and Cultural Expression* (Harpercollins, 1993), 350, 353.

<sup>93</sup> Mary McLeod, “Architecture and Politics in the Reagan Era: From Postmodernism to Deconstructivism,” *Assemblage*, no. 8 (February 1989): 26–27.



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universally rejected the modern movement's messianic faith in the new and condemned the notion of a zeitgeist that obliterated the past and wiped out differences in tradition and experience."<sup>94</sup> Promulgated by architects who did not necessarily share the same aesthetic or theoretical outlook, postmodernism is best defined not as a single, united artistic or architectural movement, but "rather a range of overlapping interest" with a broad spectrum of design practices that embraced ideas of pluralism, playfulness, excess, and ambiguity.<sup>95</sup> These ideas stood in direct opposition to the modern movement, which had used its architectural forms to evoke the values of "rationality, progress, the promise of a uniform technological society."<sup>96</sup>

In contrast to the strict functionalism emphasized by modern buildings, the new language of postmodern architecture was characterized by "the use of ornament, a concern with public space and historical context, and an effort to enliven streetscapes and bring drama to roofscapes."<sup>97</sup> The applied ornamental elements spurned by the modernists returned, deployed as what Jameson describes as both "ostentatious decorative frivolity and historicist allusion."<sup>98</sup> While elements of previous architectural styles may appear in postmodern buildings, as a general rule these borrowed elements do not appear in the same way that they did in their earlier context, as would be the case in a revival style. Rather, they "must be set in relationships that can only be of *now* – that is, their own, Postmodern, period."<sup>99</sup>

Despite the variety of aesthetic and theoretical approaches employed by individual architects, communication of meaning is a central goal of postmodern architecture, what Mary McLeod describes as "the desire to make architecture a vehicle of cultural expression."<sup>100</sup> In part, this expression was influenced by the study of semiotics, which rose to academic prominence in the late 1960s and 1970s and focused on signs and symbols as ways to convey meaning.<sup>101</sup> In leading semiotician Roland Barthes's theory, the first order of signification was simple denotation: a picture of a dog simply represents a dog. In Barthes's second order of signification, however, this "sign" carries an additional level of connotation and meaning: the picture of the dog conjures up associations with the ideas of loyalty, companionship, comfort, or any other culturally or contextually relevant meanings for the viewer.<sup>102</sup>

This use of signs and symbolism became a central feature of postmodern architecture's attempts to convey meaning. In their 1972 publication *Learning from Las Vegas*, architects Robert Venturi and

<sup>94</sup> McLeod, "Architecture and Politics in the Reagan Era: From Postmodernism to Deconstructivism," 30.

<sup>95</sup> Elie G. Haddad and David Rifkind, *A Critical History of Contemporary Architecture: 1960-2010* (Routledge, 2016), 31–32.

<sup>96</sup> David Kolb, *Postmodern Sophistications: Philosophy, Architecture, and Tradition* (University of Chicago Press, 1992), 4.

<sup>97</sup> Haddad and Rifkind, *A Critical History of Contemporary Architecture*, 31.

<sup>98</sup> Fredric Jameson, *Postmodernism, or, The Cultural Logic of Late Capitalism* (Duke University Press, 2013), 108.

<sup>99</sup> Gowans, *Styles and Types of North American Architecture*, 357.

<sup>100</sup> McLeod, "Architecture and Politics in the Reagan Era: From Postmodernism to Deconstructivism," 24.

<sup>101</sup> McLeod, "Architecture and Politics in the Reagan Era: From Postmodernism to Deconstructivism," 27.

<sup>102</sup> Roland Barthes, *Mythologies* (Macmillan, 1972), 112–27.

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Denise Scott Brown used roadside architecture as the basis of a model in which buildings can be divided into “ducks” and “decorated sheds.” In this dichotomy, the “duck” is a building whose physical form is the symbol in and of itself (Venturi and Scott Brown used the duck-shaped drive-in known as the Long Island Duckling as their introductory example). In contrast, the “decorated shed” arises when the form, structure, and division of space is defined according to the purpose of the building and ornament is then applied independently.<sup>103</sup> According to Venturi and Scott Brown, “when it cast out eclecticism, Modern architecture submerged symbolism,” abandoning an existing tradition of iconography and association and instead creating buildings that expressed their own pure architectural structure and function as a single, empty ornament: “ducks.” Venturi and Scott Brown instead advocated a return to the “decorated shed” as a revival of symbolism and accessible meaning rather than heroic, alienating abstraction.<sup>104</sup>

In the application of these concepts, postmodern architects used architectural elements not simply as decoration but as means to convey these layers of meaning. Most crucially, postmodernism returned visual elements that evoked history, regional vernacular, and a wide spectrum of symbolism, whereas modernism's lack of ornamentation and historical or regional reference evoked a single, monolithic future. As Jameson puts it, “Postmodernists explored the capacity of the *sign* to imbue buildings with cultural significance. Historicity and decontextualized references thus became the commodified ingredients of a new architectural recipe designed to counter functionalism's lifeless affect.”<sup>105</sup> The great variation of both the signs themselves and the ways they were employed architecturally makes it impossible to identify a list of common physical character-defining features within the broad category of postmodern architecture. Instead, broader conceptual themes include an emphasis on ornament, color, texture, and pattern (often in the form of Jameson's “historicity or decontextualized references”) as well as sensitivity to larger context, such as public space and an understanding of historic and regional styles.<sup>106</sup>

These key elements of postmodernism, the concepts of historicity and contextual sensitivity, are clearly illustrated by Johnson/Burgee's 1982 PPG Plaza in Pittsburgh, Pennsylvania. The design uses obvious Neogothic references but deploys them in an unmistakably contemporary rendering. In addition to the 1980s stylization of the Neogothic features, PPG Plaza displays sensitivity to historical context. The features directly reference another Pittsburgh icon, Pittsburgh University's 1926 Cathedral of Learning, and the building itself was designed as the new world headquarters of Pittsburgh Plate Glass Industries, which had historically used its corporate buildings to showcase its products (see Figures 70 and 71).<sup>107</sup>

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<sup>103</sup> Robert Venturi, Denise Scott Brown, and Steven Izenour, *Learning from Las Vegas* (Cambridge, Mass.: The MIT Press, 1972), 87.

<sup>104</sup> Venturi, Scott Brown, and Izenour, *Learning from Las Vegas*, 130–31.

<sup>105</sup> David Langdon, “AD Classics: AT&T Building / Philip Johnson and John Burgee,” *ArchDaily*, January 12, 2019, <http://www.archdaily.com/611169/ad-classics-at-and-t-building-philip-johnson-and-john-burgee/>.

<sup>106</sup> McLeod, “Architecture and Politics in the Reagan Era: From Postmodernism to Deconstructivism,” 34, 36.

<sup>107</sup> Gowans, *Styles and Types of North American Architecture*, 357.

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*Figure 70 and Figure 71. Completed in 1984, Johnson/Burgee's PPG Plaza in Pittsburgh, Pennsylvania (left), references the massing and style of Pittsburgh University's Cathedral of Learning (right), but reimagines the 1920s Neogothic elements in plate glass characteristic of 1980s office tower construction.<sup>108</sup>*

Michael Graves's Portland Public Service Building (Portland Building), completed in 1982, is recognized as one of the first examples of postmodern civic architecture and one of the most significant, high-profile designs that brought postmodernism to the forefront of the national dialogue.<sup>109</sup> The 15-story building was essentially a giant box with oversized classical references applied to its surface. These decontextualized, flattened elements included stylized garlands or swags, keystones, and fluted pilasters, none of which were employed in a structural role or at a scale comparable to their historical precedent (see Figure 72). While the Modern movement had rejected the use of "monumental imagery" in public buildings, Postmodernism returned many of these visual elements.<sup>110</sup> Referencing ancient Greek and Roman architecture, itself culturally imbued with civic monumentality, Graves used these signifiers to evoke the same feelings from viewers of the Portland Building. The result was a building that spurred intense debate and ultimately helped to establish the pattern for a postmodern architecture "based on gentle color, historic eclectic motifs, pluralism, contextualism, decoration, and contained

<sup>108</sup> Derek Jensen, *PPG Place*, 2007, Wikimedia Commons, [https://en.wikipedia.org/w/index.php?title=PPG\\_Place&oldid=900023426](https://en.wikipedia.org/w/index.php?title=PPG_Place&oldid=900023426); "Aerial View of the University of Pittsburgh Campus | Historic Pittsburgh," accessed June 20, 2019, <https://historicpittsburgh.org/islandora/object/pitt%3AMSP285.B004.F13.I16/viewer>.

<sup>109</sup> National Register of Historic Places, Portland Public Services Building, Multnomah County, Oregon, National Register #11000770.

<sup>110</sup> McLeod, "Architecture and Politics in the Reagan Era: From Postmodernism to Deconstructivism," 25.

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volumes.”<sup>111</sup> Its influence was far reaching, prompting construction of major postmodern civic projects worldwide in the decade that followed.<sup>112</sup>



Figure 72. Portland Public Service Building, Michael Graves, 1982.<sup>113</sup>

A third icon of postmodern architecture, Philip Johnson’s AT&T Building (now the Sony Building, New York City, 1984) is another extremely influential example, in this case a rejection of modernism by one of its foremost practitioners. While Venturi and Graves embraced postmodernism relatively early in their careers, Johnson was of an earlier generation and was one of modernism’s greatest proponents in the U.S. from the 1930s through the 1950s.<sup>114</sup> His design for the new AT&T headquarters in New York City, begun in 1978, is hailed as “one of the most important contributions to the emergence of Postmodernism.”<sup>115</sup> Johnson’s design is one of the most instantly recognizable uses of postmodernism’s character-defining decontextualized historical reference. The Colonial Revival broken-scroll pediment is elevated from its usual place above a residential doorway and instead placed atop the 647-foot edifice,

<sup>111</sup> National Register of Historic Places, 12.

<sup>112</sup> Haddad and Rifkind, *A Critical History of Contemporary Architecture*, 41.

<sup>113</sup> Steve Morgan, *Untitled [Portland Building]*, Photograph, August 1982, Wikimedia Commons, [https://commons.wikimedia.org/wiki/File:Portland\\_Building\\_1982.jpg](https://commons.wikimedia.org/wiki/File:Portland_Building_1982.jpg).

<sup>114</sup> Haddad and Rifkind, *A Critical History of Contemporary Architecture*, 40.

<sup>115</sup> Haddad and Rifkind, *A Critical History of Contemporary Architecture*, 40.



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while the entry portico employs a stylistic contrast with a Romanesque arcade (see Figure 73). The building's influence cemented postmodernism as "a populist movement rooted in an accessible common history."<sup>116</sup>



Figure 73. 2007 photograph of Philip Johnson's AT&T Building in New York City.<sup>117</sup>

Postmodernism's humanizing aspect was well-suited for a variety of building types that otherwise tended toward the impersonal, including office buildings and public transit facilities.<sup>118</sup> The whimsy, color, and decorative characteristics of postmodern architecture made it ideal to remedy the dreariness of air travel in the 1980s and beyond.

The understanding of the underlying theory and concepts that unify the aesthetically different manifestations of postmodern architecture provide the historic context within which to evaluate Jahn's Terminal 1. Through defining the traits and characteristics of postmodernism, as well as important

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<sup>116</sup> Langdon, "AD Classics."

<sup>117</sup> David Shankbone, *Sony Building*, Photograph, February 18, 2007, Wikimedia Commons, [https://en.wikipedia.org/wiki/550\\_Madison\\_Avenue#/media/File:Sony\\_Building\\_by\\_David\\_Shankbone\\_crop.jpg](https://en.wikipedia.org/wiki/550_Madison_Avenue#/media/File:Sony_Building_by_David_Shankbone_crop.jpg).

<sup>118</sup> Gowans, *Styles and Types of North American Architecture*, 362.

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architects and their influences, it can be demonstrated how well Terminal 1 represents this architectural period.

#### (2) Terminal 1: A postmodern terminal

In his design for Terminal 1, Jahn employed many of the tropes characteristic of postmodern architecture, including the use of color and texture and whimsical elements intended to delight passengers and humanize the buildings. His use of historical references places the terminal in dialogue with earlier architectural forms while remaining firmly in the present. Foremost among its postmodern characteristics is Jahn's use of various visual elements of the terminal's design to serve as "signs" deliberately evoking historic connotations. Although the emphasis on the exposed structural system may at first glance seem to be a holdover from modernism, it is not a purely functional structure, nor does it exist divorced from historical precedent. Through the use of vast, open-span expanses of glass supported by exposed steel, Jahn intended to draw upon transportation history and heritage, referencing the enormous glazed sheds that sheltered railroad platforms in the late nineteenth century. In this choice of materials, Jahn returns passengers to the idea of "the great gateway" first embodied by the railway halls once found in major cities throughout Europe and parts of the U.S.<sup>119</sup> In the same way that these great station halls served as statement pieces to reflect the success of nineteenth-century railroad companies, each of which sought to outdo the others' engineering feats, Jahn's glazed structure creates a memorable experience for United's passengers.<sup>120</sup>

Similarly, the glass envelope, supported by an exposed metal skeleton, serves as a direct visual reference to the Victorian-era greenhouses, or conservatories, of Britain, pinnacles of construction technology in their own time. The stepped half-domed roofline at the ends of the concourses quote the Palm House at Kew Gardens in London, and the ornamental circular cutouts in the webbing of the steel skeleton echo those found at both the Temperate House (see Figure 74) and Waterlily House at Kew Gardens. Beyond the more obvious visual connotation lies a more conceptual one; like these tremendous greenhouses, the airport was conceived as a self-contained landscape or environment, a city unto itself.<sup>121</sup>

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<sup>119</sup> Murphy, "A Grand Gateway: United Airlines Terminal," 96.

<sup>120</sup> Jahn, *Airports*, 12.

<sup>121</sup> "Interview with Helmut Jahn."

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Figure 74. Temperate House at Kew Gardens showing different types of circular cutouts in webbing.<sup>122</sup>

Along with its use of historical allusion and visual references, Terminal 1's rejection of modernism and embrace of postmodernism is evident in its numerous humanizing elements, including the diffused lighting and cool soothing color scheme (rather than United's corporate colors).<sup>123</sup> The whimsical playfulness, also typical of postmodernism, appears prominently in features such as the undulating "river" of the food court and the soothing surrealism of the underground tunnel. In the latter case the tunnel represents the literal antithesis of modernist airport tunnels such as the pale, fluorescent monotony of the tunnels built in the early 1960s to connect the various terminals at LAX. Jahn's design attempted instead to create "a place full of excitement and adventure that would still be peaceful."<sup>124</sup>

#### D. Airport design

The design of airport terminals has evolved over time as the function of the terminal itself has changed. Early terminals were essentially a sheltered waiting area for passengers, and as they became more sophisticated designers considered the spatial needs inherent in moving people through a single building that acted as a bridge between air and ground transportation. In the postwar period terminals began to

<sup>122</sup> Txlxt Txlxt, *English: London - Kew Gardens - Temperate House 1863-1903 Decimus Burton - Main Rectangular Hall: Subtropical Trees & Palms - View NNE*, Photograph, September 13, 2010, [https://commons.wikimedia.org/wiki/File:London\\_-\\_Kew\\_Gardens\\_-\\_Temperate\\_House\\_1863-1903\\_Decimus\\_Burton\\_-\\_Main\\_Rectangular\\_Hall-Subtropical\\_Trees\\_%26\\_Palms\\_-\\_View\\_NNE\\_1.jpg](https://commons.wikimedia.org/wiki/File:London_-_Kew_Gardens_-_Temperate_House_1863-1903_Decimus_Burton_-_Main_Rectangular_Hall-Subtropical_Trees_%26_Palms_-_View_NNE_1.jpg).

<sup>123</sup> Murphy, "A Grand Gateway: United Airlines Terminal," 98.

<sup>124</sup> Green, "Chicago: Terminal of the Future," 49.

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sprawl, offering new retail and entertainment amenities and spawning purpose-specific wings (the boarding pier, later the concourse) to provide access to boarding gates. In the jet age and beyond, terminals eventually developed to include multiple, distinct concourses linked by different types of circulation spaces, ranging from corridors to tunnels to tramway systems.

The following section discusses the development and evolution of airport terminal buildings as a property type, as well as the changes in airport layout that shaped terminal design. The era in which a terminal is built is reflected in its design; thus, to establish potential for significance of Terminal 1, it needs to be placed within an appropriate historic context of airport design of the era in which it was built, as well as being considered with a contextual understanding of any prior periods that influenced its design. This historic context provides the background within which to understand how the design of Terminal 1 was a shift from the terminals of the 1970s and harkened back to an earlier period of airport buildings as grand architectural statements.

#### (1) Pre-World War II beginnings

The period between World War I and World War II saw the birth of both commercial passenger aviation and the airport terminal as a distinct architectural property type.<sup>125</sup> Prior to that time early airfields were predominantly either purely utilitarian (a landing field, perhaps with storage facilities) or designed as sporting venues similar to horse racing tracks, where spectators could watch air contests and demonstrations.<sup>126</sup> World War I served as a substantial impetus for the rapid advances in both aircraft and airfield development, and at the war's conclusion Europe's aviation infrastructure was far more developed than that of the U.S.<sup>127</sup> The 1910s and 1920s saw the conversion of European military airfields for civilian use, and through much of the interwar period Europe dominated the forefront of airport design and development.<sup>128</sup> Major interwar examples included Paris's Le Bourget, Berlin's Tempelhof, and the Hendon, Croydon, and Hounslow airports outside London.<sup>129</sup>

Early terminal building designs at these airports varied widely; aesthetically, many employed architectural styles popular at the time, while others were designed to evoke existing, familiar architecture precedents. At Le Bourget, the first design included a group of small buildings, each of which housed different functions, rather than a single terminal; the buildings were arranged around a central plaza reminiscent of an urban city square. The first "integrated terminal" design was constructed in 1922 at the Königsburg airport in East Prussia (now Kaliningrad, Russia). The facility combined passenger and administrative spaces in a single building, located at the corner of the airfield and flanked by hangars. The Königsburg concept was employed in Berlin on a far grander scale with the landmark construction of the first terminal at Tempelhof in 1926 (see Figure 75). At Tempelhof, the airport facilities included a central control tower, hangars, and a two-story terminal building. The terminal itself featured a Modernist design with a long,

<sup>125</sup> Hugh Pearman, *Airports: A Century of Architecture* (Laurence King Publishing, 2004), 42; Alastair Gordon, *Naked Airport: A Cultural History of the World's Most Revolutionary Structure* (Henry Holt and Company, 2014), 10–13.

<sup>126</sup> Gordon, *Naked Airport*, 10–13.

<sup>127</sup> Pearman, *Airports*, 41.

<sup>128</sup> Gordon, *Naked Airport*, 10–13.

<sup>129</sup> Pearman, *Airports*, 42.



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linear form and bands of windows. Notably, its designers anticipated future expansion and expected that additions would extend at either end to accommodate larger numbers of passengers.<sup>130</sup>



Figure 75. Photograph of the 1926 Tempelhof terminal building, shown in 1928.<sup>131</sup>

London's Croydon, constructed in 1928, serves as another milestone in airport design. In this case, an imposing building reminiscent of a country estate included a four-story, crenellated control tower at the center of the facade and the interior layout provided what author Alastair Gordon describes as "the conceptual beginnings of airport circulation" (see Figure 76).<sup>132</sup> The symmetrical floorplan divided both cargo and passengers into arrivals and departures, and even included separate lavatory facilities for landside and airside staff.<sup>133</sup>

<sup>130</sup> Pearman, *Airports*, 53.

<sup>131</sup> SPIEGEL ONLINE Germany Hamburg, "Fotostrecke - Bild 2 - Abschied von Tempelhof," *SPIEGEL ONLINE*, accessed June 19, 2019, <https://www.spiegel.de/fotostrecke/abschied-von-tempelhof-fotostrecke-107840-2.html>.

<sup>132</sup> Gordon, *Naked Airport*, 16.

<sup>133</sup> Gordon, *Naked Airport*, 15.

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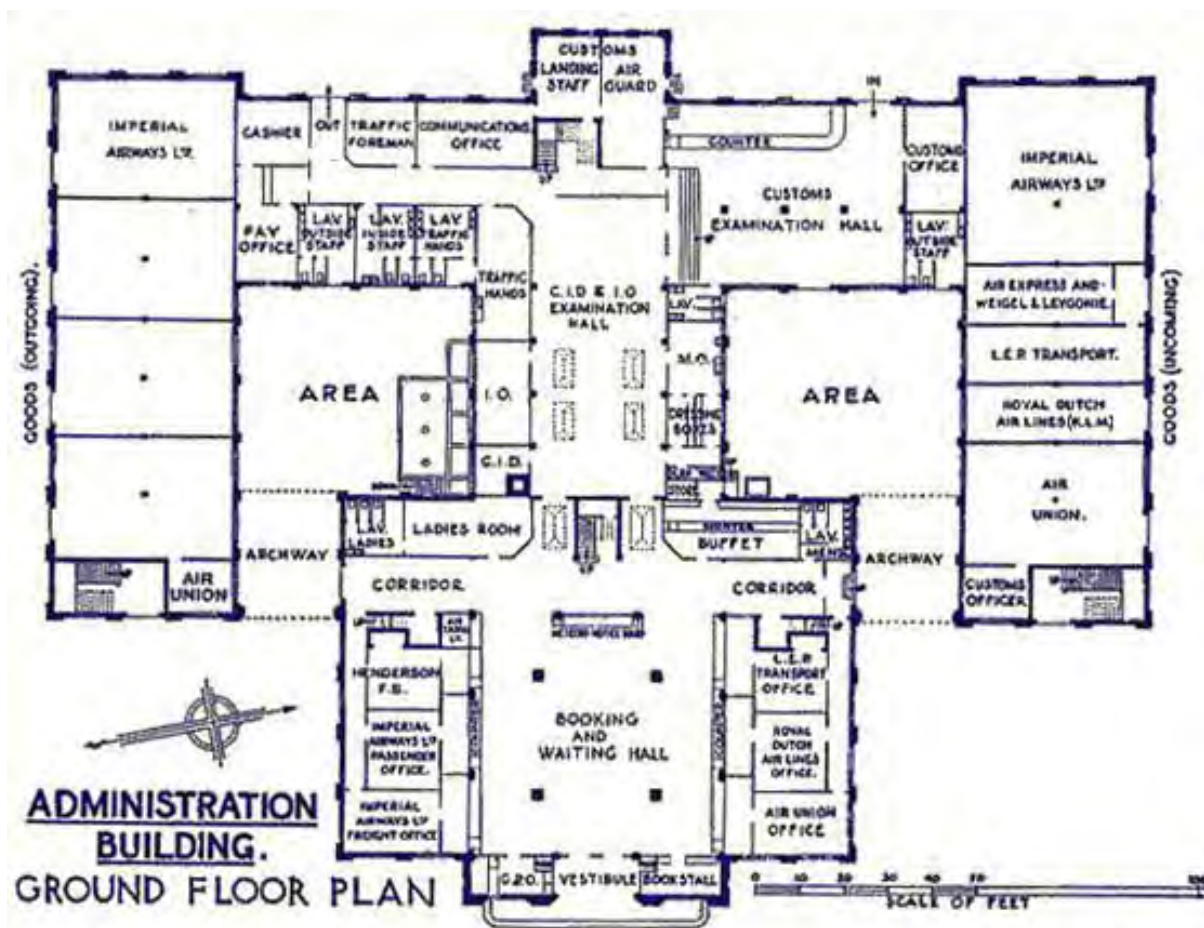


Figure 76. Original floorplan for Croydon Airport, c. 1928.<sup>134</sup>

Passenger air service was available between most of Europe's capital cities by the mid-1920s and had become a fashionable mode of transport for the wealthy. Meanwhile in the U.S., the majority of the expansion of aviation had occurred in the postal sector transporting mail, and most airports lacked a true terminal building because there was limited passenger service. When Charles Lindbergh completed his successful transatlantic solo flight in 1927, his return from Paris ushered in a new era in airport development in the U.S.; his 80-city, nationwide tour spurred a feverish interest in aviation, and in the year that followed passenger totals quadrupled and airport construction boomed.<sup>135</sup> In the U.S., airport terminals initially fell into one of two general building types. Many took the form of the "depot hangar," which placed waiting rooms and offices in a portion of a large hangar. A parallel model developed based on the railroad terminal, in which a separate dedicated building housed a waiting area and had "gates" to permit access to and from aircraft on the adjacent apron.<sup>136</sup> Within these two general forms, architects

<sup>134</sup> "Terminal Internal," accessed June 19, 2019, <http://www.airportofcroydon.com/Terminal%20Internal.html>.

<sup>135</sup> Gordon, *Naked Airport*, 13, 25.

<sup>136</sup> John Zukowsky and Koos Bosma, *Building for Air Travel: Architecture and Design for Commercial Aviation* (Art Institute of Chicago, 1996), 68–70.

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applied a range of decorative detail that incorporated popular architectural styles or aviation-based imagery.<sup>137</sup>

Financed largely through private enterprise, the fledgling commercial airline industry in the U.S. suffered somewhat with the onset of the Great Depression. Nevertheless, federal relief programs such as the Public Works Administration and the Works Progress Administration (later renamed Work Projects Administration) soon provided a major source of funding for construction and expansion of municipal airports across the nation.<sup>138</sup> Federal efforts to standardize the design of both airports and the terminals themselves led to greater uniformity of design, if not style. The common form that emerged by the mid-1930s was not too dissimilar to the European model established at Tempelhof; municipal airports typically consisted of a low, wide building with a central control tower and windows along the airside elevation.<sup>139</sup> But while many smaller municipal airports followed this pattern, influential large-scale examples at New York's La Guardia and Washington D.C.'s National (now Reagan) airports were at the forefront of airport development during this period, serving as forerunners to the postwar model of major urban airports.<sup>140</sup>

Construction of a new Washington National Airport facility began in 1940 as a major priority of the Roosevelt administration. Architect Howard Lovewell Cheney's design of the new terminal was monumental, both in size and spirit, reminiscent of the "great departure hall" of earlier railroad architecture. Sited along the newly constructed Mount Vernon Parkway, the terminal's landside and airside facades echoed George Washington's home with its own massive colonnades, a melding of Art Deco style and Palladian reference (see Figure 77). Built into a hillside, the terminal also incorporated an innovative circulation pattern. Landside access from a curving drive brought passengers to the upper level of the terminal, where an overhanging roofline sheltered the sidewalks. The terminal's 12 gates were located on the lower level, which was at-grade on the airside. Passengers were also separated horizontally, with departures entering at the north end of the terminal and arrivals exiting at the south end.<sup>141</sup> The overall form, with a raised central portion and gently curved wings around a looped driveway, appeared at contemporary airports such as La Guardia and Dublin (Ireland, 1937) and was essentially a continuation of earlier European airport terminal design seen at the 1920s Tempelhof.<sup>142</sup> Unlike previous airports that typically moved passengers through a single level from landside to airside, the new Washington design prefigured the postwar American airport's use of vertical separation between departures and arrivals.

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<sup>137</sup> Zukowsky and Bosma, *Building for Air Travel*, 73.

<sup>138</sup> Zukowsky and Bosma, *Building for Air Travel*, 72.

<sup>139</sup> Zukowsky and Bosma, *Building for Air Travel*, 73–74, 79; Gordon, *Naked Airport*, 101–3; Pearman, *Airports*, 57.

<sup>140</sup> Gordon, *Naked Airport*, 121.

<sup>141</sup> Zukowsky and Bosma, *Building for Air Travel*, 79–80.

<sup>142</sup> Pearman, *Airports*, 58.

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Figure 77. Landside view of Washington National Airport in 1941 showing colonnade, driveway, and canopy.<sup>143</sup>

#### (2) Postwar and the jet age

As commercial air travel resumed following World War II, passenger totals rose exponentially. Across the nation, smaller airport terminals were woefully inadequate to handle thousands of passengers. New terminal designs were developed to accommodate travel on this unprecedented new scale. At the forefront of this new breed of airport, Greater Pittsburgh Airport (now Pittsburgh International Airport) embodied the future that awaited the terminal as a city unto itself. Completed in 1952, it was the largest terminal constructed in the U.S. at the time, described as a “city within a city,” and featured a nightclub, roof deck, restaurants, cinema, and retail stores.<sup>144</sup> Along with Friendship International Airport in Baltimore (opened in 1949), Pittsburgh’s terminal design incorporated the now-standard curved form, accessed from a looping drive, and a convex airside elevation. Unlike prewar airports, however, both Friendship and Pittsburgh utilized a new and notable design component, deployed in response to the increasing size of aircraft and numbers of passengers. At both airports, a massive perpendicular wing (longer than the main terminal itself) extended from the center of the terminal out onto the apron to provide enclosed access directly to aircraft gates, rather than requiring passengers to walk across the tarmac. At Pittsburgh, this boarding wing was referred as the “finger dock,” and featured a staggered massing with a rounded end (see Figure 78).<sup>145</sup>

<sup>143</sup> Jack Delano, *At the Entrance to the Municipal Airport in Washington, D.C.*, Photograph, 1941, <https://www.loc.gov/pictures/resource/fsa.8a36232>.

<sup>144</sup> Gordon, *Naked Airport*, 164, 166.

<sup>145</sup> Gordon, *Naked Airport*, 164–65.



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Figure 78. Greater Pittsburgh Airport, c. 1952.<sup>146</sup>

Aside from the boarding piers, the airports of the early 1950s were not altogether different from their prewar antecedents and used existing building technology. By the late 1950s, however, architects used new technologies to create ever more futuristic terminal buildings, resulting in changes to both style and layout/form. During the war, concrete arches and shells saw increasing use for hangar construction and enabled extremely large clear spans, such as at the San Diego Naval Air Station (see Figure 79).<sup>147</sup> From these more utilitarian uses, postwar designers drew both technical and aesthetic inspiration, as can be seen at Lambert Airport in St. Louis, itself an inspiration for Saarinen's TWA terminal at JFK.<sup>148</sup> Designed by Minoru Yamasaki of Hellmuth, Yamasaki and Leinweber, Lambert opened in 1956 to great acclaim. Described by architecture critic Hugh Pearman as "the best of the 1950s airports," Yamasaki's Lambert terminal served as a model for many of the architects who designed the terminals at John F. Kennedy International Airport in New York.<sup>149</sup> The terminal's thin-shell concrete design employs three cross-vaulted spaces arranged in a linear fashion, illuminated by vast expanses of glass (see Figure 80). Like earlier airports, it utilized a perpendicular boarding pier, but the arched roof and massive glazed facades were new elements that would be echoed for decades to come.

<sup>146</sup> Harold Corsini, *Aerial View of Greater Pittsburgh Airport* | *Historic Pittsburgh*, Photograph, c 1952, MSP285.B001.F03.I05, Detre Library & Archives, Heinz History Center, [https://historicpittsburgh.org/islandora/object/pitt%3AMSP285.B001.F03.I05/from\\_search/4330a4ab72217447044b1b828d36ba2c-2](https://historicpittsburgh.org/islandora/object/pitt%3AMSP285.B001.F03.I05/from_search/4330a4ab72217447044b1b828d36ba2c-2).

<sup>147</sup> Gordon, *Naked Airport*, 135.

<sup>148</sup> Antonio Roman, Antonio Román, and Eero Saarinen, *Eero Saarinen: An Architecture of Multiplicity* (Princeton Architectural Press, 2003), 52; Pearman, *Airports*, 117.

<sup>149</sup> Pearman, *Airports*, 140, 142.

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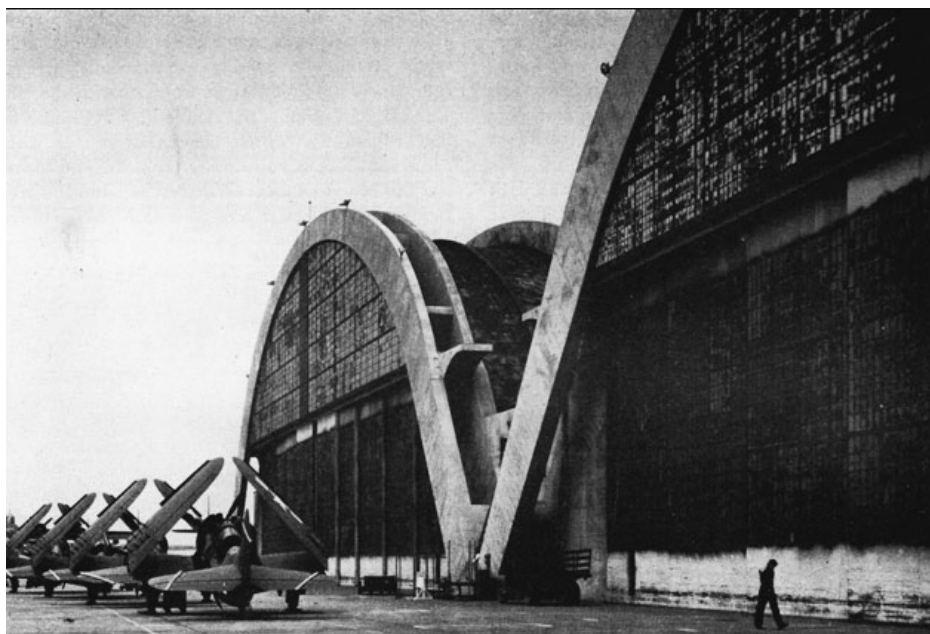


Figure 79. Concrete arch hangars at the San Diego Naval Air Station.<sup>150</sup>



Figure 80. Concrete arch hangars at Lambert International Airport.<sup>151</sup>

The 1952 master plan for the new Idlewild Airport (now JFK), approved the same year that Greater Pittsburgh opened, represented a turning point in airport design. Whereas elsewhere, multiple airlines flew in and out of a single, publicly operated terminal, the new plan master plan expanded on the circular-drive-and-terminal formula and transformed it into a circle of separate terminals, each operated by a separate airline. The resulting layout, constructed from 1957 to 1962 (with a final terminal added in 1970), set the pattern later replayed at airports across the country, including at O'Hare (see Figure 81). Within this layout, individual terminal buildings reflect the “jet age” aesthetic of the late 1950s and 1960s as Pan-Am, United, American, and other major carriers sought to outdo one another. The arched truss of the

<sup>150</sup> “Lambert Field - Photograph Collection - Digital Collections,” accessed June 13, 2019, <https://digital.shsmo.org/digital/collection/imc/id/13990/rec/2>.

<sup>151</sup> “Lambert Field - Photograph Collection - Digital Collections.”

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wartime hangar was again echoed in the central bay of J. Walter Severinghaus's design for the International Arrivals Building (IAB, 1957), and Saarinen's TWA building (1962) took the thin-shell technology used at Lambert and created an even more iconic design. Although wildly different in appearance due to architectural style, the terminals at JFK generally follow the model introduced at Pittsburgh and Baltimore, with a main building and one or more perpendicular wings for aircraft gates. One notable exception was the Pan-Am terminal, consisting of a central disk surrounded by gates; this too would eventually be updated with additional boarding concourses extending onto the apron.

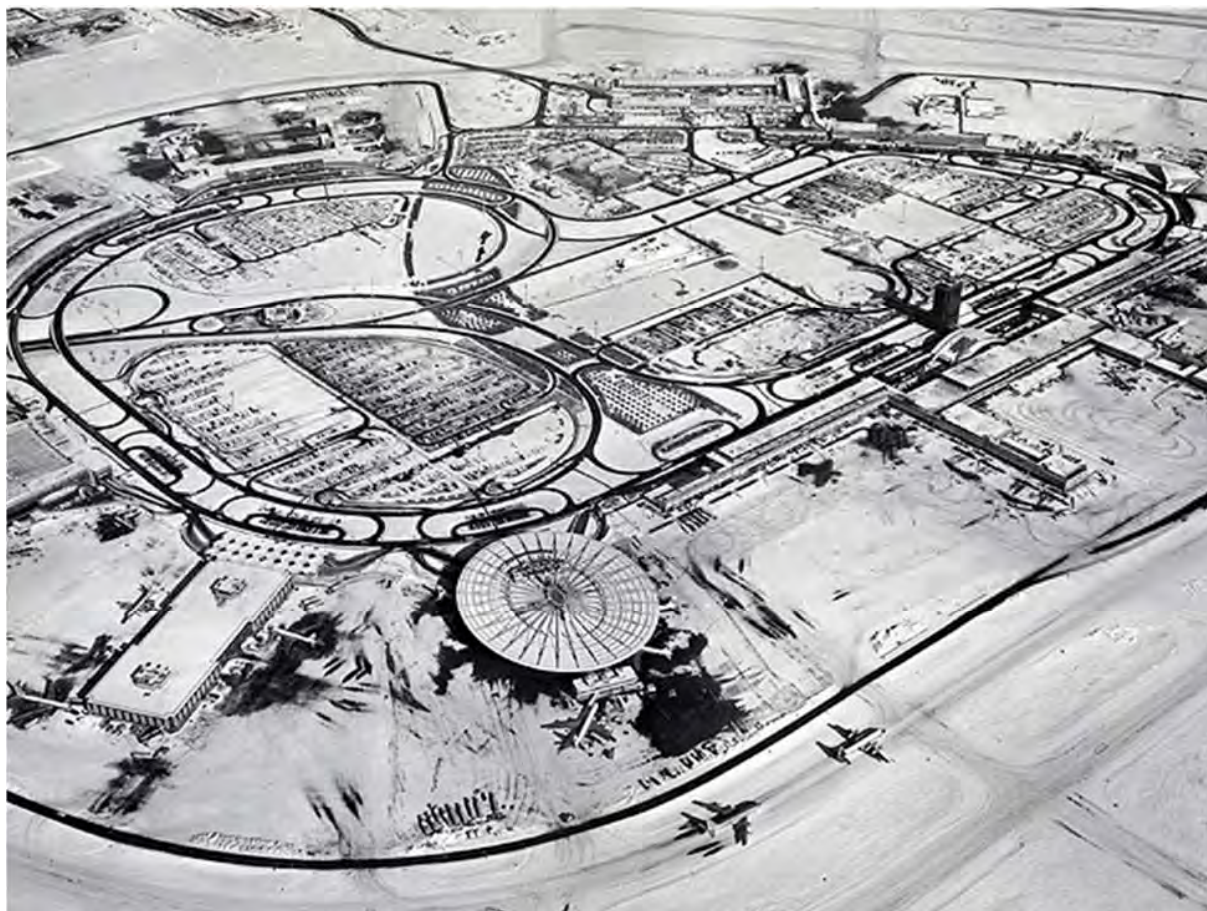


Figure 81. Aerial view of JFK Airport in 1964 showing looping roadway with various terminals, with Pan-Am in the foreground.<sup>152</sup>

Even among the other striking buildings at JFK, Saarinen's TWA terminal is one of the most influential airport buildings of the twentieth century. With its curvilinear emphasis and flowing lines, the separation of space is distorted, as all but the aircraft gates are located beneath a single vast vault with two mezzanine sections connected by a bridge floating in the midst of the vast open space. In a new twist on the boarding pier, "flight tubes" carried passengers to two gate concourses that branched out at roughly a 90-degree angle to one another. Like these branching boarding gates, Saarinen's design introduced other

<sup>152</sup> Theodore Ross, *Aerial View of JFK International Airport*, Photograph, September 17, 1964, NYJA000025, University of Texas at Austin, Harry Ransom Center, <https://norman.hrc.utexas.edu/nyjadc/ItemDetails.cfm?id=25>.

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features that would eventually become commonplace, particularly the baggage handling system in which passengers would check their baggage at the front of the terminal, after which it would be transported directly to the aircraft. Other elements Saarinen had envisioned, such as moving walkways between the terminal and separate boarding gate concourses, would not be installed in the TWA terminal but would be realized in later airport designs.<sup>153</sup>

Ultimately, JFK's greatest influence lay in its overall layout; critics and airport planners eschewed the wild variation among the terminals but embraced the concept of the great looping roadway ringed by terminals. This circulation plan was incorporated into the improvements at O'Hare (1961, see Section 2.A), San Francisco International (1963), and LAX (1961). At both O'Hare and LAX the individual terminals were built identical to one another; modernist buildings that blurred the traveler's ability to orient themselves within the complex. Although built at the same time as JFK, the modernist approach at O'Hare and LAX stood in stark contrast to the spectacle of Saarinen's concrete terminal and the architectural variety of JFK. The Theme Building at LAX and the Rotunda at O'Hare served as the only obvious visual landmarks among otherwise indistinguishable airport buildings.<sup>154</sup>

Commercial jets were first introduced in the U.S. in 1959, and rapidly altered the parameters of airport design.<sup>155</sup> The rise of the jet age, with its larger and louder aircraft, increased the need to provide separation between the main terminal and the aircraft boarding gates. Concourses lengthened or branched, and new enclosed jet-bridges such as the "aero gangplank" introduced by United Airlines at O'Hare in 1958 eliminated the need to exit the concourse to board an aircraft from the tarmac.<sup>156</sup> Cumulatively, this substantially lengthened passengers' journey from ticketing to boarding. In an effort to shorten the trek, moving sidewalks were deployed, first at Dallas's Love Field in 1957 but more sensationally at LAX in 1964, when Lucille Ball was invited to christen the new "Astroway."<sup>157</sup> Whereas Saarinen had placed his "flight tubes" above ground at JFK, the seven terminal buildings at LAX were connected to separate boarding "pods" via tunnels beneath the apron, and the "Astroways" conveyed passengers through these underground tunnels in order to reduce the effort of traveling nearly a quarter-mile between ticketing and aircraft gates.<sup>158</sup>

The ever-increasing sprawl of major airports ultimately led to the elimination of the earlier concept of the great departure hall seen in the airports of the 1920s and 1930s, itself a holdover from the monumental railroad stations of the late nineteenth and early twentieth centuries. The "statement building" embodied by the TWA terminal at JFK was abandoned in favor of decentralization and the use of modular, expandable clusters of buildings. In some cases this decentralization was achieved through a greater physical separation between satellite boarding areas and the main terminal, an "intermodal" style that

<sup>153</sup> Janet R. Bednarek, *Airports, Cities, and the Jet Age: US Airports Since 1945* (Springer, 2016), 129–30.

<sup>154</sup> *South Terminal Construction*, Photograph, 1962, 1997.52.051.017, SFO Museum, [https://media.flysfo.com/styles/history\\_timeline\\_slider\\_images/s3/pub\\_1997.52.051.017a.jpg](https://media.flysfo.com/styles/history_timeline_slider_images/s3/pub_1997.52.051.017a.jpg); Gordon, *Naked Airport*, 210–12.

<sup>155</sup> Bednarek, *Airports, Cities, and the Jet Age*, 130.

<sup>156</sup> "Briefings," *Flying Magazine*, June 1958, 58.

<sup>157</sup> Gordon, *Naked Airport*, 223.

<sup>158</sup> Gordon, *Naked Airport*, 223.



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linked buildings by high-speed ground transport rather than pedestrian corridors. The concept of separating landside and airside facilities was pioneered at Tampa International, completed in 1971, which used an electric “people mover” system to ferry passengers between the landside terminal, with ticketing and baggage, and the airside boarding satellites.<sup>159</sup>

In the ultimate form of decentralization, Dallas/Fort Worth Regional Airport (completed in 1973) dispensed with even the pretense of a hub building. A series of identical semicircular terminals lined both sides of a single highway spine, allowing passengers to drive directly to the desired terminal. As at Tampa, a tramway system connected the terminals to one another as well. The semicircular design was oriented with the convex side facing the apron to provide the maximum number of aircraft gates, while the concave side enclosed a parking area. Both the layout and the buildings themselves were based on simplified, Brutalist building-block concepts: the individual terminals were constructed using precast sections, and the airport as a whole could be expanded simply by adding more terminals along the spine.<sup>160</sup>

#### (3) Deregulation: The demise and return of the “great hall”

After the arrival of the jet, airline deregulation wrought the next major change in airport terminal design. Signed into law by President Jimmy Carter in 1978, the Airline Deregulation Act eliminated federal oversight of the ways in which airlines set fares or determined routes, letting market conditions dictate the logistics of air travel. Architecture critic Alistair Gordon cites deregulation as “the dividing line between the modern and postmodern periods of commercial aviation – between the golden days of the jet age and the transportation agonies of today.”<sup>161</sup>

As airlines overhauled their operations to maximize profits and efficiency, the “hub” concept centralized airline operations in a smaller number of major airports, which in turn served to connect secondary destinations. This increased the number of travelers making connections at larger regional and international airports, as less popular destinations were no longer accessible from direct routes. In turn, the airlines began using “banks” of flights, in which flights arrived and departed in staggered waves, allowing more efficient connections. This led to a drastic increase in the number of passengers in the terminals during these peak periods, many more of whom had to cross large distances in the terminal to make their connecting flights.<sup>162</sup> This represented a major shift in circulation patterns within the airport; where designers had previously focused on the movement of passengers between aircraft and ground transportation, the emphasis was now on transferring within or between the terminals themselves.<sup>163</sup> New, larger concourses offered more retail and dining options for those with layovers. Spatial relationships between concourses were designed for efficiency, both for passenger traffic as well as for the movement of jumbo jets on the aprons and taxiways.<sup>164</sup>

<sup>159</sup> Gordon, *Naked Airport*, 240–41.

<sup>160</sup> Gordon, *Naked Airport*, 243–44.

<sup>161</sup> Gordon, *Naked Airport*, 245.

<sup>162</sup> *Airport Cooperative Research Program Report 25, Airport Passenger Terminal Planning and Design, Volume 1: Guidebook*, 8.

<sup>163</sup> Gordon, *Naked Airport*, 246.

<sup>164</sup> *Airport Cooperative Research Program Report 25, Airport Passenger Terminal Planning and Design, Volume 1: Guidebook*, 8.

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One of the first major airport projects constructed after deregulation, Atlanta Hartsfield International Airport's Midfield Complex exemplifies this new direction in terminal design. An earlier terminal completed in 1961 had a central building surrounded by six radiating boarding piers.<sup>165</sup> Within its first year of operation, passenger volume exceeded its capacity, and by the mid-1960s a new master plan incorporated the midfield design. Construction did not begin for more than a decade, however, and the new facility that opened in 1980 reflects the expediency of the post-deregulation era. The new layout consisted of an entrance terminal with four identical, parallel concourses separated by aprons wide enough to accommodate two jumbo jets. In order to speed transfer between airlines, the four concourses were all part of a single secure area and the single security checkpoint was located in the main terminal. The entire complex was connected by an underground "transit mall" that included pedestrian corridor, moving walkways, and a tramway system. While it solved many of the problems introduced by hubbing, the new Hartsfield did so with an almost industrial, Brutalist aesthetic largely devoid of natural light.<sup>166</sup> Gone were the vaulted rotundas in the 1961 concourses (demolished) that directly referenced Lambert and TWA; these were replaced by windowless holding areas and corridors (see Figure 82).



Figure 82. Image from the October 1980 issue of Delta's employee publication showing Hartsfield "before" at left and "after" at right.<sup>167</sup>

Although economic conditions and real estate constraints slowed airport construction in the U.S. in the 1980s, changes were afoot again as architects and travelers gradually rebelled against the "alienating indignities" of airports such as DFW and Hartsfield's Midfield.<sup>168</sup> Designers began to abandon the decentralized, impersonal, and industrial perspective in favor of a revival of the monumental departure hall of 1920s and 1930s terminal designs. New terminal designs were intended as bold, gestural

<sup>165</sup> "History of ATL | ATL | Hartsfield-Jackson Atlanta International Airport," accessed June 14, 2019, <https://www.atl.com/about-atl/history-of-atl/>.

<sup>166</sup> Gordon, *Naked Airport*, 246–48.

<sup>167</sup> "Atlanta's 1961 Terminal Closes," *Sunshine Skies*, accessed June 14, 2019, <https://www.sunshineskies.com/atl-1961-terminal-closes.html>.

<sup>168</sup> Bednarek, *Airports, Cities, and the Jet Age*, 137; Gordon, *Naked Airport*, 250.

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signature pieces that would stand out in the travel experience, a sharp contrast to both the stark modernism of the 1960s, as seen in O'Hare's Terminals 2 and 3, and the uniformity of the 1970s. Architects employed walls of glass that emphasized natural light, a return to the concepts of "view" from the late 1950s and early 1960s. At the forefront of this trend in the U.S., Jahn's design for Terminal 1 was intended to "reintroduce the romance of travel" at O'Hare.<sup>169</sup> Terminal 1 represents a shift away from the decentralized and utilitarian terminals of the 1970s towards a return to airport buildings as grand statements, including the concept of grand halls first seen in the 1920s and 1930s and architecturally distinctive terminal buildings of the 1950s.

Aspects of Jahn's concept deliberately inverted many of the notions of the 1970s airports, as seen in his use of visual and audio elements in the underground tunnel that offered sensory overload in contrast to the unintentional sensory deprivation found at LAX and Hartsfield. The multisensory tunnel experience at O'Hare influenced architect Don Stolt to rival Hayden and Jahn's designs with a more sophisticated and flexible light and sound installation at Detroit Metro Airport in 2001.<sup>170</sup>

As airports across the nation began to update their facilities to cope with ever-increasing numbers of passengers, Terminal 1 stood out as one "that is redefining the design standards for airports of the future."<sup>171</sup> In a design magazine from 1988, author Donna Green outlined Jahn's intentions and successes:

The United Terminal has clearly raised the standards for airport design in the future. Its vast spaces and sweeping lines of glass and steel manage to reach out to its users, offering an unexpected mixture of exuberance and reassurance. The terminal's design adapts to practical needs through more efficient ticketing facilities, more spacious waiting rooms and less complicated boarding procedures. But it also invokes images of grandeur and fantasy appropriate to—and long-missing from—air travel. "Airports are gateways to cities," concludes Jahn, "They should reflect the excitement, the spirit of that passage."<sup>172</sup>

While its details were not unequivocally copied by subsequent airport designers, Jahn's Terminal 1 marked a conceptual turning point. Although stylistically different from Terminal 1, Denver International Airport also followed the pattern set by Jahn's design in its concept of a monumental, memorable "great hall." This "great hall" served as the gateway to a set of parallel concourses, as at Hartsfield, and all travelers entered and exited through this dramatic space. One of the major showpiece airports of the 1990s, the Denver airport was the first completely new, major commercial airport constructed in the U.S. since 1974. Intent on creating an iconic design to serve as a city symbol, the City of Denver rejected a glass and steel roofline design, like Terminal 1, that referenced railroad sheds. Instead, the final design incorporated a Teflon fabric roof that instead evoked the nearby mountain skyline.<sup>173</sup>

<sup>169</sup> Gordon, *Naked Airport*, 253.

<sup>170</sup> Daniel G. Fricker, "Light and Sound Will Give Travelers a Special Show," *Detroit Free Press*, December 22, 2001.

<sup>171</sup> Green, "Chicago: Terminal of the Future," 46.

<sup>172</sup> Green, "Chicago: Terminal of the Future," 51.

<sup>173</sup> Bednarek, *Airports, Cities, and the Jet Age*, 137–38.

## Section 2

### Statement of Significance

New airport construction through the 1990s continued to employ these themes of excitement, light, and the creation of distinctive spaces, and architects used visual elements to invoke the history of transportation either directly or metaphorically. In the case of Norman Foster's design for London's Stansted Main Terminal, the architect employed branching, tree-like columnar structures to conceal utilities and support the roof above a vast open area. In addition to the emphasis on openness and natural light, the design eschewed the sense of separation of space and elongated corridors, and like Jahn, Foster attempted to invoke the romantic by reaching back in transportation history, although he chose to draw upon aviation rather than rail influences. The 1991 Stansted design:

...went back to the roots of modern air travel and literally stood conventional wisdom on its head. The earliest airport buildings were very simple: on one side there was a road and on the other a field where aircraft landed into the wind. The route from landside to airside involved a walk from your car through the terminal and out to your plane, which was always in view. Stansted attempted to recapture the clarity of those early airfields, together with some of the lost romance of air travel.<sup>174</sup>

Although not an aesthetic sourcebook per se, Jahn's design for Terminal 1 is therefore highly significant for its role in redefining what an airport terminal should be. Placing emphasis on the emotional experience of the traveler, it sought to restore the excitement and romance of air travel and create a memorable space that would serve as a gateway to Chicago. Regardless of any direct visual or design influence, these values alone shaped the future of air terminal design. By understanding the full historic context for U.S. terminal design from the 1920s through 1980s, the potential significance of Terminal 1 can be evaluated.

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<sup>174</sup> Foster + Partners / [www.fosterandpartners.com](http://www.fosterandpartners.com), "Stansted Airport | Foster + Partners," accessed June 14, 2019, <https://www.fosterandpartners.com/projects/stansted-airport/>.



## Section 3 Recommendation

### 3. Recommendation

#### A. Significance

Terminal 1 was evaluated for National Register of Historic Places (National Register) eligibility under *Criteria A, B, C, and D*. Because Terminal 1 is not yet 50 years in age, *National Register Criteria Consideration G: Properties that have achieved significance in the past fifty years* was applied. Evaluation under each of the National Register Criteria and discussion of period and level of significance and historic integrity is provided below.

##### (1) Criterion A

Under *Criterion A*, "Properties can be eligible for the National Register if they are associated with events that have made a significant contribution to the broad patterns of our history."

The 1978 Airline Deregulation Act dramatically changed the nature of air travel in the U.S. By consolidating flights into regional hubs, airlines were able to significantly increase the number of flights they were able to operate. This in turn created the need for a change in airport design to accommodate the increase of both aircraft and passengers at the country's major airports. Atlanta's Hartsfield-Jackson Airport was one of the first to address these issues by completely redesigning the airport around a mid-field complex of satellite concourses. This new layout allowed aircraft to move more freely and provided travelers with expanded amenities. Atlanta's design represented a comprehensive re-imagining of the flow and functionality of that airport. In contrast, as a single terminal, Terminal 1 at O'Hare represents only one airline's response to the challenges presented by deregulation at an airport that was already facing difficulties with increasing demands on its aging facilities and infrastructure. Since the 1960s O'Hare has consistently ranked as one of the busiest airports in the country, and the number of passengers serviced has grown every year. In response, there have been continuous improvements to the O'Hare complex, including the parking garage and hotel in the 1970s, the O'Hare Development Program of the 1980s and 1990s, and recent modernization programs. Terminal 1 represents one aspect of the improvements undertaken at O'Hare to manage passenger demand and changes within the aviation industry. The physical layout of Terminal 1, as a response to deregulation, employed the same solutions that can be seen in Atlanta, Denver, and many other airports of the time. Therefore, Terminal 1 is not a unique or exceptionally significant example of the trends brought about by airline deregulation. As such, Terminal 1 is recommended not eligible for listing in the National Register under *Criterion A*.

##### (2) Criterion B

Under *Criterion B*, "Properties may be eligible for the National Register if they are associated with the lives of persons significant in our past."

Terminal 1 is not associated with any persons of historical significance outside of its architects, engineers, and designers, which are addressed under *Criterion C*. As such, it is recommended not eligible for listing in the National Register under *Criterion B*.

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#### (3) **Criterion C**

Under *Criterion C*, "Properties may be eligible for the National Register if they embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction."

Terminal 1 is potentially eligible for listing in the National Register under *Criterion C* in the area of *Architecture* as it embodies the characteristics of a type, period, or method of construction; represents the work of a master; and possesses high artistic value.

Terminal 1 embodies significant characteristics of an airport terminal of the postmodern era, representing this distinctive property type. Because postmodernism was not a single cohesive movement, representation of the style is less dependent on specific character-defining features than the overarching ideas portrayed through individual designs. As a rejection of Modernism's abstraction of form, postmodernism returned to overt symbolism in its use of applied ornamentation and historical reference to evoke cultural associations for viewers. Primarily, Terminal 1 represents postmodernism through its clear reference to nineteenth-century European train sheds and iron-framed glass greenhouse/conservatory structures such as the Crystal Palace and Kew Gardens. These references are made through the extensive use of vaulted glass curtain walls and the precise steel detailing with circular cutouts in the webs of beams and girders. As a decorative rather than structural feature, the latter design element also represents the shift away from modernism's strict adherence to functionalism. At the symbolic level, the train shed reference evokes transportation heritage and the nineteenth-century concept of the station as a "great gateway," while the evocation of Kew Gardens represents the idea of the self-contained landscape or environment, as well as one of the Victorian era's great technological marvels. Terminal 1's expansive and integrated vaulted spaces, along with the stylistic exhibition of the structural engineering that makes them possible, are central to Jahn's historicist representations, which are characteristic of postmodernism.

As an architecturally significant airport terminal, Terminal 1 represents a shift away from the decentralized and utilitarian terminals of the 1970s towards a return to airport buildings as grand statements. Jahn's postmodern, historicist design succeeds in creating a grand entrance to Chicago and a memorable communal space for travelers that had been largely absent from airport design in the U.S. since the early 1960s. At the time of its construction Terminal 1 was described as setting a new standard for airport terminal design, and its influence on subsequent terminals is evident in such airports as Denver International and London's Stansted, as well as other airports designed by Jahn in Munich and Bangkok.

Although Helmut Jahn is still a practicing architect, Jahn's work clearly stands out among other architects who were practicing in the late twentieth century. He has received significant accolades throughout his career, spanning from the 1970s to the present, which warrant his consideration as a master architect. Jahn has continually received awards for his buildings within the U.S. and abroad, including awards from the AIA, multiple professional organizations, and various European building associations. He has been the subject of much scholarly work including multiple monograph publications and features in both scholarly and popular publications. In addition, Jahn has begun to receive significant retrospective recognition of his body of work including a lifetime achievement award from the Chicago chapter of the

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AIA. Terminal 1 is one the most well-known and critically acclaimed examples of Jahn's postmodern phase and in recent years architectural critics such as Blatsky and Schulz have argued that Terminal 1 represents one of the best works of Helmut Jahn's career. Furthermore, Terminal 1 stands as Jahn's first work of aviation architecture, which he has continued in Germany and Thailand with enduring critical praise. For these reasons, Terminal 1 can be classified as the work of a master.

Terminal 1 also represents high artistic value seen in the intricate arrangement and presentation of the building materials and structural design employed to create Jahn's "grand gateway" to Chicago. While the use of architecturally exposed structural steel represented a major shift in airport design, it is the artistic effect of this material that is exceptional. The meticulously designed connection points of the structural system are both functional and decorative as they subtly celebrate and draw attention to both the materials and the structural engineering of the terminal's interior spaces. The barrel-vaulted curtain wall circulation corridors create a sense of open space and lightness within a relatively narrow and compact space. This effect is further aided by the reliance on natural light during the day and expert execution of diffused artificial lighting at night. At the time of completion, Terminal 1 received a widely positive contemporary critical reception along with multiple accolades. Critics praised the use of light and space as well as hailing the terminal as an innovative architectural statement in the realm of airport design. In addition, Michael Hayden's neon light installation and Jahn's illuminated walls in the connecting tunnel represent a complete spatial artistic statement distinct among American airports that can only be compared to the 2001 light tunnel at Detroit Metro Airport, which was directly influenced by Hayden's O'Hare installation.

For these reasons, Terminal 1 is recommended eligible for listing in the National Register under *Criterion C: Architecture*.

#### (4) **Criterion D**

Under *Criterion D*, "Properties may be eligible for the National Register if they have yielded, or may be likely to yield, information important in prehistory or history."

The design, construction, and alterations of Terminal 1 have been well documented, and it is unlikely that the building has potential to yield important information that is not otherwise accessible. As such, Terminal 1 is recommended not eligible for listing in the National Register under *Criterion D*.

#### (5) **Criteria Consideration G**

Under *Criteria Consideration G*, "A property achieving significance within the past fifty years is eligible if it is of exceptional importance."

Terminal 1, completed in 1988, is less than 50 years old. However, as detailed above, it exhibits exceptional importance and meets *Criteria Consideration G* as a prominent and influential example of a postmodern airport terminal, as one of the most widely praised works of Helmut Jahn's career, and for the high artistic value of its structural design and the dynamic artistic space of the connecting tunnel. As an example of postmodern architecture, Terminal 1 represents a style that is only recently being discussed in terms of eligibility to the National Register because few examples have yet reached 50 years in age. However, Terminal 1's postmodernist design influenced later airport terminal designs by re-establishing

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the terminal as grand artistic statement. This influence can be compared to Michael Graves's Portland Building, which was listed in the National Register in 2011 and successfully met *Criteria Consideration G* for its seminal influence on the design of civic architecture. In addition, although Jahn is a living architect, he has received continued acclaim throughout his career and Terminal 1 is an exceptionally significant representation of his postmodernist work and the first airport terminal that he designed. The artistic value of Terminal 1's exposed steel design is of exceptional importance due to its continuing influence on the design and construction of airport terminals. Jahn introduced the use of this material in airport terminals, which allowed him to create the detailed features and grand open spaces that define Terminal 1. The influential design of the connecting tunnel further sets Terminal 1 apart as a groundbreaking artistic statement. Terminal 1's exceptional artistic value can be favorably compared to Eero Saarinen's TWA Terminal at JFK, which was listed in the National Register in 2005 and successfully met *Criteria Consideration G* for its artistic value in the use of concrete to erect a similarly grand entrance to New York City. As such, Terminal 1 is recommended as meeting *Criteria Consideration G*.

*National Register Bulletin 43: Guidelines for Evaluating and Documenting Historic Aviation Properties* states, "Given that airplanes and the infrastructure of aviation (like navigation aids and hangars) were not designed or constructed for fifty years of operation, Criteria Consideration G deserves special attention."<sup>175</sup> This argument was not applied in the case of Terminal 1 because modern commercial airport terminals, as a property type, are permanent structures intended to potentially last for more than fifty years.

#### (6) Period of significance

The period of significance was determined to coincide with the years of construction: 1986-1988.

#### (7) Level of significance

Terminal 1 was evaluated for significance as a representative of airport design on the national level.

### B. Integrity

To be eligible for inclusion in the National Register, a property must exhibit sufficient historic integrity to convey its significance, in addition to being associated with one or more of the National Register Criteria listed above. Terminal 1 was evaluated for the seven aspects of integrity, including location, design, setting, materials, workmanship, feeling, and association. Overall, Terminal 1 retains strong historic integrity in all aspects, especially in the primary public spaces of the terminal building, and has not undergone significant alterations that would affect its eligibility for listing in the National Register. A roof repair project is planned for Terminal 1; this evaluation of integrity does not consider any potential impacts that the proposed roof repair may have on the integrity of Terminal 1. The evaluation of integrity for Terminal 1 according to each aspect is detailed below.

- **Location** – Terminal 1 remains in its original location and therefore retains integrity of location.

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<sup>175</sup> Anne Milbrooke et al., "National Register Bulletin: Guidelines for Evaluating and Documenting Historic Aviation Properties" (U.S. Department of the Interior, National Park Service, National Register of Historic Places, 1998), 33.



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- **Design** – Terminal 1 retains overall integrity of design in the general layout, style, structure, and artistic features of the primary public spaces, with alterations as discussed below. These alterations primarily affect secondary features of the building and are not extensive enough to significantly diminish the historic integrity of the Terminal 1 design. Exterior additions including vestibules 1Da and 1Db and the United Club addition at the middle of Concourse C have altered the original footprint of the terminal, but do not significantly detract from the original exterior design. The 2007 TSA addition on the south end of the ticketing area altered the footprint of the building to address modern security needs. Original design elements that have been removed include the original exterior canopy, which was replaced with a new canopy designed by Helmut Jahn, and the moving walkways within the concourses, infilled with in-kind terrazzo flooring. Other less prominent alterations include the infilling of the stairwells in the “banana gates,” installation of self-service ticketing kiosks, remodeling and expansion of concessions, and glazing alterations (see Materials below).
- **Setting** – Terminal 1 retains its integrity of setting within the larger O'Hare International Airport complex, which has not been substantially altered since the period of significance.
- **Materials** – Terminal 1 retains its original materials in primary public spaces including exposed steel, aluminum and glass curtain wall system, fritted glazing, structural glazed tile units, and terrazzo floors. Subsequent repairs and alterations, such as the removal of moving walkways in 2014, have generally been completed with in-kind replacement materials. Replacement of select windowpanes with acid-etched glass and the application of tinted film to other panes were conducted to reduce glare and affect a relatively small percentage of the glazing in the terminal. As such, these alterations do not significantly diminish the terminal's historic integrity of materials.
- **Workmanship** – Terminal 1 conveys integrity of workmanship in its primary public spaces through the appearance of the steel framing and connection points, fritted glass, terrazzo floors, tunnel artwork, and lighting features. Additions including the exterior canopy and vestibules, security area, and United Club at the middle of Concourse C have not diminished Terminal 1's integrity of workmanship.
- **Feeling** – Terminal 1 retains integrity of feeling through its continued use as an airport terminal, large expansive interiors, and extensive use of natural light. The retention of the building's historic design, materials, and workmanship in the primary public spaces collectively convey integrity of feeling as a representative of 1980s postmodern architecture.
- **Association** – Due to the cumulative retention of the above aspects of integrity, Terminal 1 retains strong integrity of association with the architect, Helmut Jahn, and postmodern airport terminal design.

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#### C. Eligibility

Terminal 1 displays significance under *Criterion C: Architecture*, including meeting *Criteria Consideration G*, and retains sufficient integrity to convey this significance. Therefore, Terminal 1 is recommended eligible for listing in the National Register.

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## **Bibliography**

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## **G-2.2. Terminal 1 Reevaluation**

**From:** [Hanson, Amy \(FAA\)](#)  
**To:** [Carol.Wallace@illinois.gov](#)  
**Cc:** [Rubano, Anthony](#); [Brandon L. Robinette](#); [dwasiuk@hmmh.com](#); ["ORDTAP"](#); [Christina Slattery](#); [Amy Squitieri](#); [vigilante1@msn.com](#); [Aaron.Frame@cityofchicago.org](#); [epeters@ricocondo.com](#); [cvenzon@ricocondo.com](#); [Dominic Garascia](#); [Wells, JaDa \(FAA\)](#); [Basic, Catherine \(FAA\)](#); [Strasser, Alan \(FAA\)](#)  
**Subject:** Chicago O'Hare International Airport Terminal 1 Re-evaluation of eligibility for the National Register of Historic Places  
**Date:** Thursday, June 10, 2021 9:43:36 PM  
**Attachments:** [Terminal 1 Reevaluation of National Register Eligibility 20210601.pdf](#)

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CJ,

As we discussed recently, attached is a copy of the FAA's re-evaluation of the eligibility status for Terminal 1 at Chicago O'Hare International Airport. The analysis was completed to evaluate the roof repair work to Terminal 1 that is not a Federal Action, but is occurring while we are completing the Terminal Area Plan and Air Traffic Actions Environmental Assessment and the Section 106 consultation for the environmental assessment.

The FAA believes that Terminal 1 displays significance under *Criterion C: Architecture*, including meeting *Criteria Consideration*

G, and retains sufficient integrity to convey this significance. Overall the roof repair work was conducted in a manner that adheres to the Standards for Rehabilitation. Therefore, it is recommended that Terminal 1 should retain its 2019 determination of eligibility for listing in the National Register. We seek your concurrence on this recommendation.

Thank you.

Amy B. Hanson  
Environmental Protection Specialist  
Chicago Airports District Office  
Federal Aviation Administration  
Office: 847-294-7354  
Cell: 847-571-3425





## Illinois Department of Natural Resources

One Natural Resources Way Springfield, Illinois 62702-1271  
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Mailing Address: 1 Old State Capitol Plaza, Springfield, IL 62701

JB Pritzker, Governor  
Colleen Callahan, Director

Cook County  
Chicago

Terminal Area Plan and Air Traffic Actions Environmental Assessment at Chicago O'Hare International  
Airport  
10000 W. O'Hare Ave.  
SHPO Log #003042921

August 2, 2021

Amy Hanson  
U.S. Department of Transportation  
Federal Aviation Administration  
Chicago Airports District Office  
2300 E. Devon Ave., Suite 201  
Des Plaines, IL 60018

Dear Ms. Hanson:

Thank you for requesting comments from our office concerning the possible effects of your project on cultural resources. Our comments are required by Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations, 36 CFR 800: "Protection of Historic Properties".

Our staff has reviewed the "Reevaluation of National Register of Historic Places Eligibility O'Hare International Airport Terminal 1" dated June 1, 2021. We concur with the report's conclusions on page 23 that the roof work meets The Secretary of the Interior's "Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings" and that Terminal 1 should retain its 2019 determination of eligibility for listing in the National Register of Historic Places under Criterion C for its architectural design, including meeting Criteria Consideration G.

Please contact CJ Wallace, Cultural Resources Coordinator, at 217/785-5027 or at Carol.Wallace@illinois.gov with any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert F. Appleman".

Robert F. Appleman  
Deputy State Historic  
Preservation Officer

## Reevaluation of National Register of Historic Places Eligibility

### O'Hare International Airport Terminal 1

Mead & Hunt, Inc.

June 1, 2021

## Purpose

This document is prepared as a supplement to the *Determination of Eligibility: Terminal 1, Chicago O'Hare International Airport* (August 2019). Its purpose is to document roof repair work conducted in 2020-2021 that modified Terminal 1 after its determination of eligibility for listing in the National Register of Historic Places (National Register) and reevaluate the terminal's historic integrity and continued ability to convey significance. This work was completed by United Airlines (UA) in cooperation with the Chicago Department of Aviation (CDA) as an independent project that did not require federal approval and therefore was not subject to Section 106 of the National Historic Preservation Act of 1966 (Section 106) review. As of May 2021 the roof repair work is in progress. Concourse C repair work is 100% completed and Concourse B work was about 10% complete as of late April. Since modifications to Concourse B will follow the same approach as Concourse C, the evaluation of integrity is possible prior to 100% completion, which is not expected until December 2021.

## Regulatory and Project Background

Identification of historic properties supports Federal Aviation Administration (FAA) requirements for compliance with Section 106 regulations issued pursuant to the National Historic Preservation Act (NHPA), as amended (36 CFR 800). Section 106 of the NHPA concerns the review of federal undertakings. A federal undertaking is a project, activity, or program either funded, permitted, licensed, or approved by a federal agency. The Terminal Area Plan and Air Traffic Actions Environmental Assessment comprises 35 projects that are the federal undertaking. The report, *Architecture/History Survey Report for Terminal Area Plan and Air Traffic Actions Environmental Assessment: Chicago O'Hare International Airport* (April 2021), describes efforts to identify historic properties.

In 2019 the FAA submitted a Determination of Eligibility for Terminal 1 to the Illinois State Historic Preservation Office (SHPO) with a request to concur that the property displays significance under National Register *Criterion C: Architecture*, including meeting *Criteria Consideration G: Properties that have achieved significance in the past fifty years*, and retains sufficient historic integrity to convey this significance. SHPO responded on September 12, 2019, with its concurrence that the property meets *Criterion C*, including *Criteria Consideration G*, at the national level of significance. See FAA and SHPO correspondence in Appendix A. This reevaluation of the eligibility of Terminal 1 for listing in the National Register was completed to address recent changes to the terminal and to assist FAA in moving forward with the Section 106 process required by the federal undertaking.

## Description of Historic Property

The document *Determination of Eligibility: Terminal 1, Chicago O'Hare International Airport* (August 2019) (DOE) concludes Terminal 1 possesses significance under National Register *Criterion C: Architecture*, including meeting *Criteria Consideration G: Properties that have achieved significance in the past fifty*

years, and retains sufficient historic integrity to convey this significance. Therefore, the DOE recommends Terminal 1 as eligible for listing in the National Register (see Appendix B).

As described in the DOE, Terminal 1 consists of ticketing and baggage areas attached to a primary concourse, Concourse B, and a satellite concourse, Concourse C, connected by an underground tunnel. The two concourses are characterized by barrel-vaulted exterior curtain walls and interior exposed steel structures. The terminal was designed by Chicago-based architect Helmut Jahn and constructed between 1986 and 1988. Its postmodern design references London's Victorian-era Crystal Palace as well as historic rail stations that served as city gateways, making the experience of leaving or entering cities memorable for travelers.

Terminal 1 was determined eligible for listing in the National Register under *Criterion C* in the area of Architecture as it embodies the characteristics of a type, period, or method of construction; represents the work of a master; and possesses high artistic value. Terminal 1 embodies significant characteristics of an airport terminal of the postmodern era, representing this distinctive property type. It represents a shift away from the decentralized and utilitarian terminals of the 1970s towards a return to airport buildings as grand statements. Helmut Jahn's work clearly stands out among other architects practicing in the late twentieth century. Terminal 1 stands as Jahn's first work of aviation architecture, receiving broad critical acclaim both at the time of construction and retrospectively. As a result, Terminal 1 can be classified as the work of a master. Terminal 1 also represents high artistic value seen in the intricate arrangement of its steel and glass building materials, which were employed by Jahn to create a "grand gateway" to Chicago. The connecting tunnel offers a complete spatial artistic statement that is distinct among American airports.

Terminal 1, completed in 1988, is less than 50 years old. However, as detailed above, it exhibits exceptional importance and meets National Register *Criteria Consideration G* as a prominent and influential example of a postmodern airport terminal, as one of the most widely praised works of Jahn's career, and for the high artistic value of its steel and glass design and the dynamic artistic space of the connecting tunnel. After a career spanning five decades, Helmut Jahn passed away in May 2021.

The architectural features that give Terminal 1 distinction include its expansive and integrated vaulted glass curtain wall spaces, along with the stylistic exhibition of the structural engineering seen in the detailed steel structural system with circular cutouts in the webs of beams and girders, primarily visible on the interior of the building.

The 2019 DOE noted that Terminal 1 retains strong historic integrity in all aspects, especially in the primary interior public spaces of the terminal building. At that time, alterations primarily affect secondary features of the building. Exterior additions, including vestibules and lounge additions at the middle of Concourse C and south end of the ticketing area, altered the original footprint of the terminal but did not significantly detract from the original exterior design. Original design elements that have been removed include the original exterior canopy, which was replaced with a new canopy designed by Helmut Jahn. Previous glazing alterations included replacing select windowpanes with acid-etched glass and the application of tinted film to other panes to reduce glare. The extent of the current roof repair project led FAA to seek reevaluation of the terminal's historic integrity.

## Approach to the Reevaluation

Materials describing the Terminal 1 roof repair project, as provided to FAA by the CDA, were reviewed by FAA consultants. This team of consulting architectural historians and historical architect from Mead & Hunt, Inc. (Mead & Hunt) meets the professional qualification standards of the Secretary of the Interior. The team reviewed materials and conducted an on-site observation to understand visual changes and their potential effect on historic integrity of the terminal. This information was then analyzed applying the Secretary of the Interior's Standards and the National Register criteria for eligibility and historic integrity considerations.

The understanding of the roof repair work is based on CDA submittals as follows:

- T1 Roof Repair Project CDA questions – UA response 5.20.19 (this document listed 4/26/19 preliminary analysis questions from FAA consultant with UA response)
- ORD T1 Roof Repairs Project Status 01-20-2021
- ORD T1 Roof Repairs Photographs 03-4-2021 (see Appendix C)
- ORD T1 Concourse C interior images 03-31-2021
- Plan sets dated 9/14/2018: Series A-I Roof Rehabilitation Design Drawings, Series T<sup>1</sup>
- Response to FAA Comments on the T1 Roof and Glazing Rehabilitation Project Consolidated - May 12, 2021 (addresses questions posed 4/6/2021, 4/23/21 and 4/28/21)
- Response to FAA Comments on the Terminal 1 Roof and Glazing Rehabilitation Project – May 21, 2021 (Questions Received from FAA via Email dated May 17, 2021)

## Description of work

Extensive roof repair work is intended to address leaking and improve energy efficiency throughout Concourses B and C. The project scope includes over-cladding the entire barrel vault of both concourse by covering over the metal panels and replacing glass located in the barrel vault roof, replacing flat and low sloped roofing, replacing the standing seam roofing over the Concourse B ticketing area, and repairing joint sealants at the perimeter.

Areas of over-cladding are the following:

- Half dome apse at each end of both concourses
- Barrel vaulted height that forms the spine of the concourses
- Lower flat roof on either side of the spine

The existing barrel-vault curtain wall system of Terminal 1 Concourses B and C is overlaid with a fully engineered aluminum frame system with glass and metal panel infills. Glass that infilled these units are removed (100% of the glass) and replaced, set in the new aluminum framing system (see detail in Figure

---

<sup>1</sup> Due to volume of information, plans were reviewed at a high level only. Series H drawings, which proposed changes to vertical walls, were not implemented and this work is no longer planned according to CDA.



1). The original metal panels are retained and visible on the interior but new metal panels are installed over the top and are visible from the exterior (see detail in Figure 2).

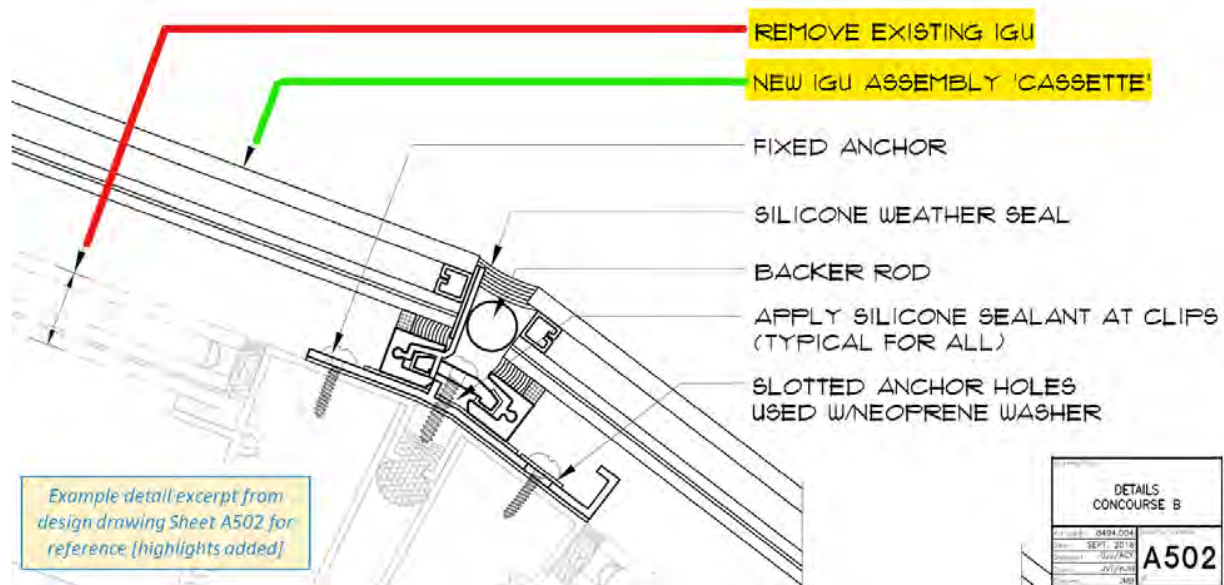


Figure 1. Excerpt from Sheet A502 depicting removal of Individual Glass Units (IGU) and replacement in new frame system (highlights added for reference), courtesy of CDA. Source: United Airlines, Inc., "Terminal 1 Roof and Glazing Rehabilitation," O'Hare International Airport, CDA Project No. H1165.14-00, Sheet A502, prepared by Klein and Hoffman, Inc., Issued for Bid, September 12, 2018.

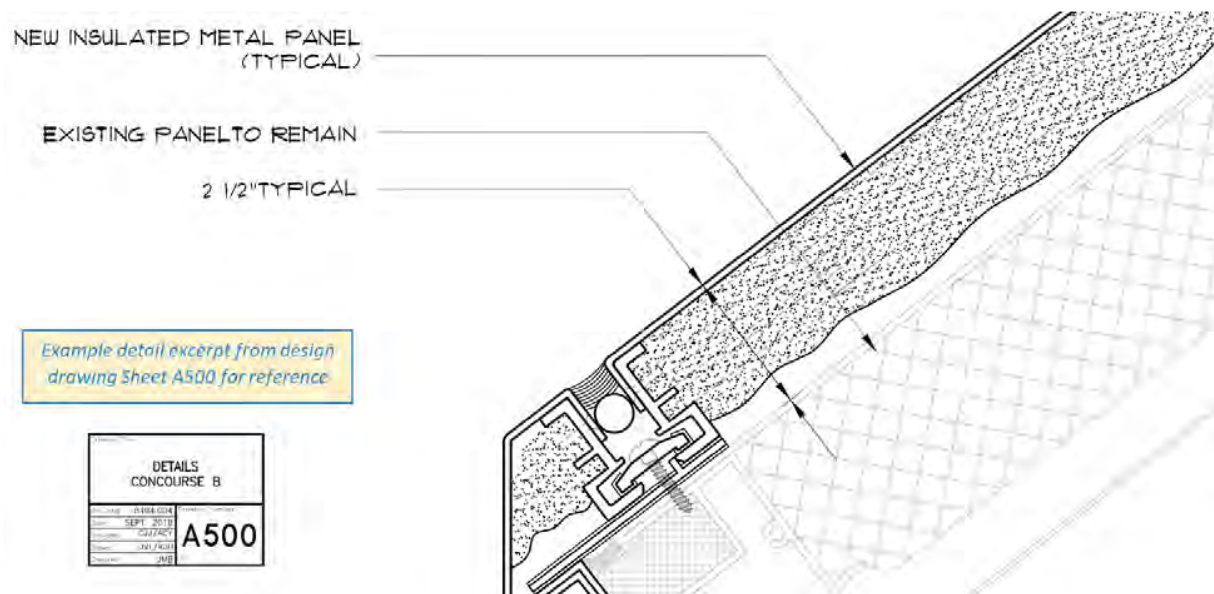


Figure 2. Excerpt from Sheet A500 showing installation detail of new metal panel in new frame system, courtesy of CDA. Source: United Airlines, Inc., "Terminal 1 Roof and Glazing Rehabilitation," O'Hare International Airport, CDA Project No. H1165.14-00, Sheet A500, prepared by Klein and Hoffman, Inc., Issued for Bid, September 12, 2018.

The new aluminum frame system is attached by mechanical screws to the existing mullions. The glazing and metal panels have silicone butt joints. As viewed from the exterior (see Figure 3), the horizontal and vertical module dimensions of the original curtain-wall system were retained in the over-cladding but horizontal detailing is lost due to replacement of 2" mullion with  $\frac{3}{4}$ " sealant joint (see detail in Figure 4 and Figure 5).



Figure 3. Photograph of the barrel vault along the spine of Concourse C.

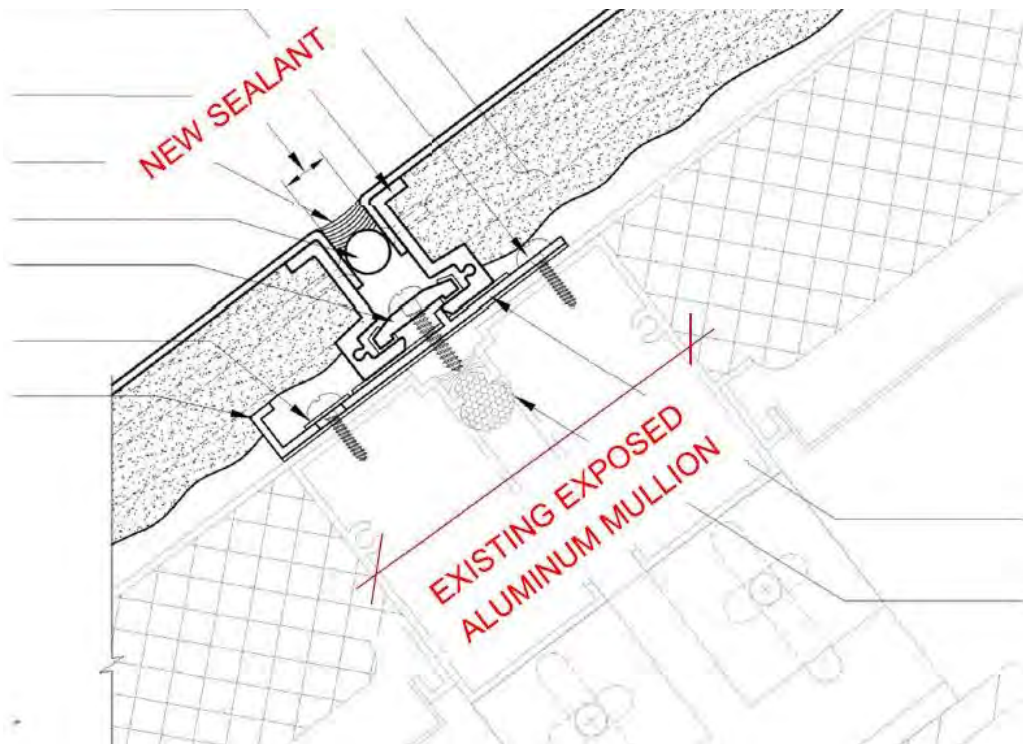


Figure 4. Excerpt from Sheet A500 depicting new sealant at nominal joint width and existing exposed aluminum mullion, courtesy of CDA. Source: United Airlines, Inc., "Terminal 1 Roof and Glazing Rehabilitation," O'Hare International Airport, CDA Project No. H1165.14-00, Sheet A500, prepared by Klein and Hoffman, Inc., Issued for Bid, September 12, 2018.



*Figure 5. Photograph of Concourse C showing metal panels and glazing over cladding the barrel vault; the butt joints between units are narrower than the original horizontal and vertical dimensions, which are still visible on the vertical end wall.*

Glass was installed with intent to replicate existing glazing patterns. Glazing units in the barrel vault and domed apse are replaced following previous patterns of clear, block fritted and striped etched patterned glass. The original individual unitized frame system remains intact below the new curtainwall though the glass panels were 100% removed and replaced (see detail in Figure 1). The replacement glass has an added Low-E energy efficient coating to reduce the solar heat gain. The original skylight system was not Low-E coated but various films, shades, and devices were applied over the years to address the solar heat gain in the building.

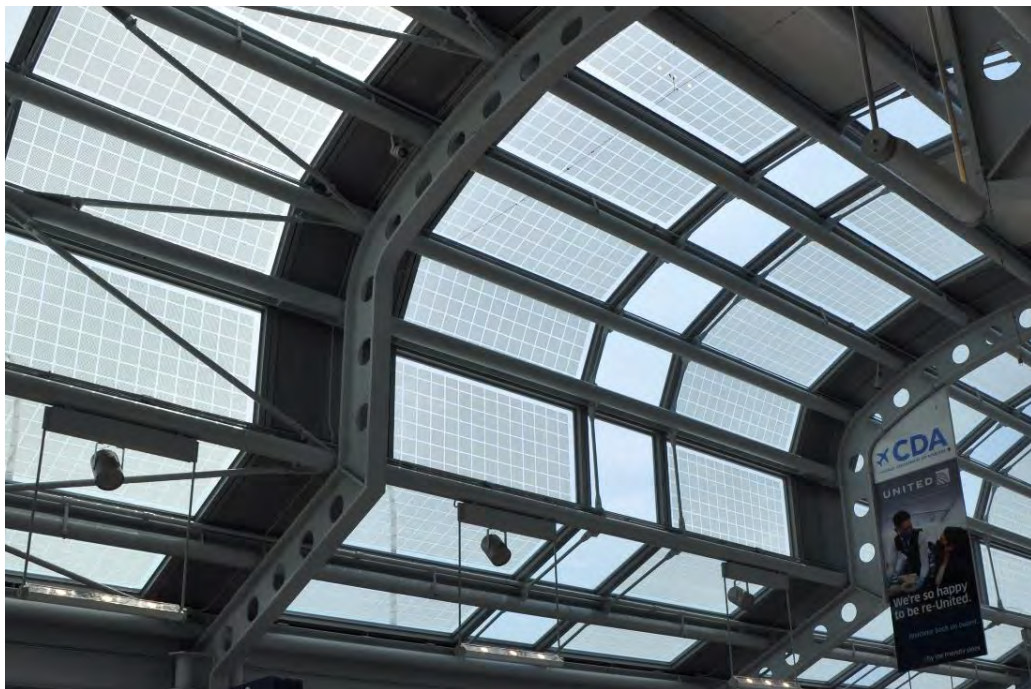
While the glazing was described in the plans and specifications as matching the color and reflectivity of the original glazing, due to the application of Low-E coating the resulting exterior and interior visual appearance is different. From the exterior, the majority of the glass has a greener hue than the original. An exception to this is the barrel-vault in Concourse C over connecting tunnel and service desk (Gates C17-21 area) where the shading coefficient of the glass was increased to match the performance of the existing applied solar film (see Figure 6). This is causing the new glass to appear more purple in this section vs the glass surrounding it, which appears green. A similar area at the center of Concourse B will also have the same glass installed when the work is completed this year. It is anticipated that this will result in the same color difference in the glass as currently visible on Concourse C.

On the interior of the barrel vaulted corridor, a new wider border around the glass frit pattern of the original glazing design is visible (see Figure 7). While seen on fritted glazing throughout the interior, the border width is most prominent in the apse (see Figure 8).

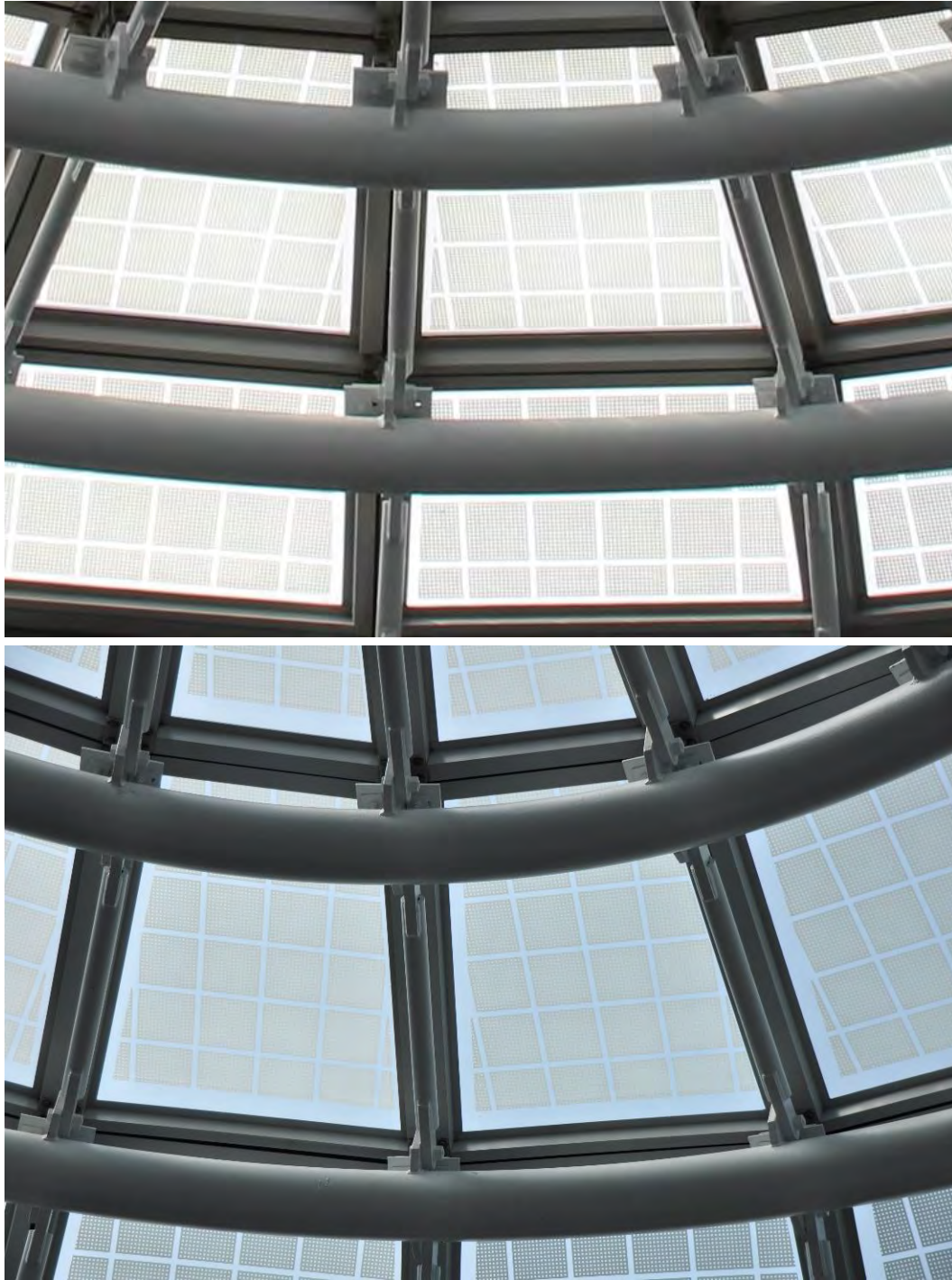




*Figure 6. Photograph of Concourse C, showing purple hued glass bays at left and green hued glass bays at right.*



*Figure 7. Photograph of fritted glass at Concourse C interior with border visible around fritted block pattern.*



*Figure 8. Top photograph shows the fritted glass at the apse with the original pattern; bottom photograph shows the replacement fritted glass at the apse with more prominent border width, shown at Concourse C.*

Due to the condition of the original frame system, the work on the barrel vault roof could not be reversed and restored to its original condition. Original window panels were largely damaged or broken during removal and therefore not retained. In addition, the number of penetrations in the existing frame system due to how the new frame system was mechanically fastened have compromised the weather seal and the existing frame would need to be rebuilt to restore the weather seal. It would not be desirable to restore the original roof system due to the prior joint and sealant condition that had caused roof leaks.



The metal panel roof system with sawtooth roof over the ticketing area of Concourse B is planned to be replaced with a new batten seam roof. The profiles and color are expected to be similar to the original roof. This area is not yet completed.

The roof system in low-slope areas of both concourses is replaced (Concourse B is in progress). Existing systems had been a Hypalon system generally past its useful life. The replacement roofs are Polymethylmethacrylate (PMMA) and Inverted Roof Membrane Assembly (IRMA) type systems, which are a low-slope, white fluid-applied roofing membrane with walkable roofing pavers. The low-slope roof and the vault to low sloped roof transition areas are not visible from the exterior airside, with a few noted exceptions where the roof engages directly with the vertical facade (see detail in Figure 9). Gate C15 on the east side of Concourse C is an example of a location where the roof engages the facade directly (see Figure 10 and Figure 11).

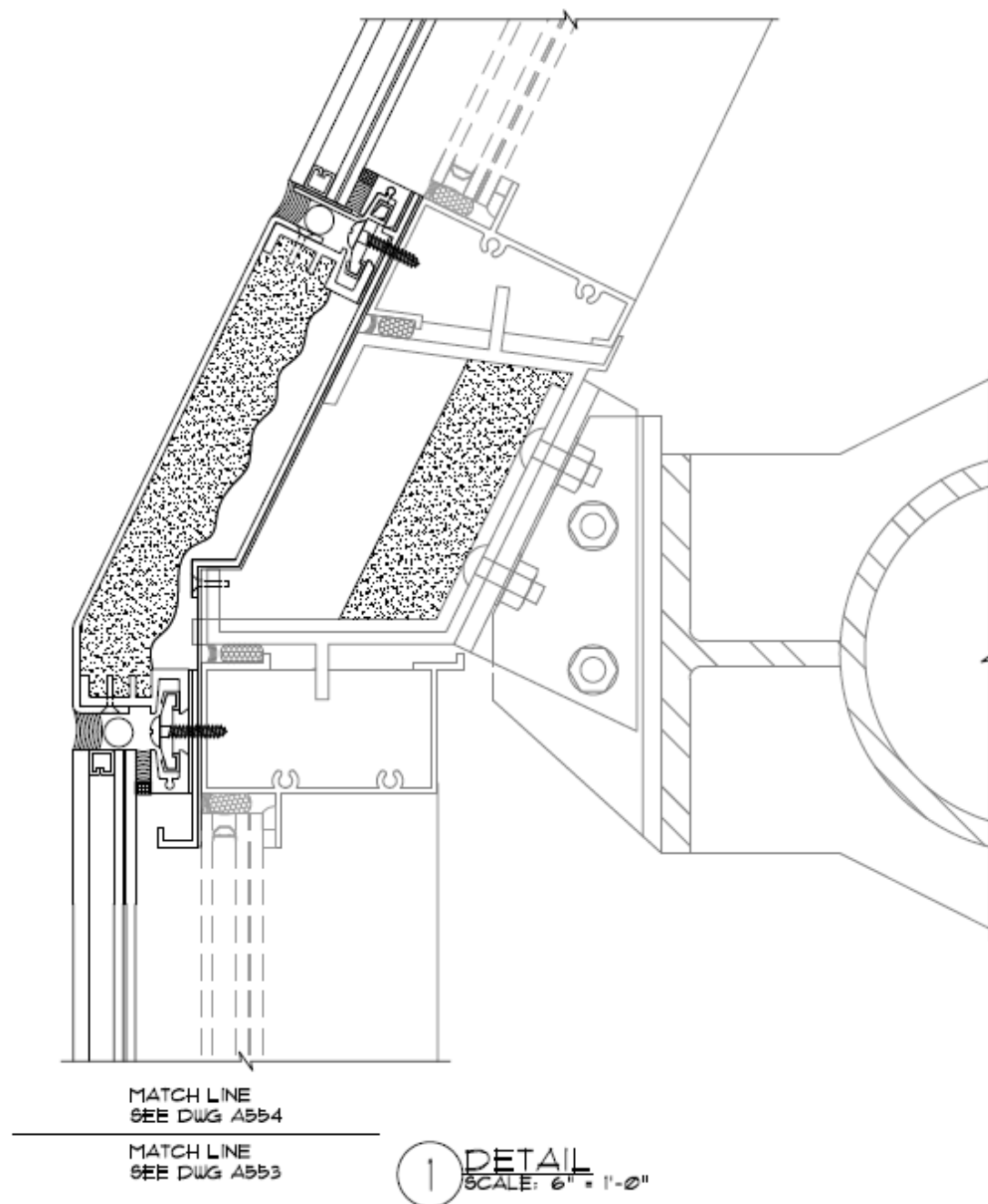


Figure 9. Excerpt from Sheet A554 showing detail of roof engaging with the vertical facade. Source: United Airlines, Inc., "Terminal 1 Roof and Glazing Rehabilitation," O'Hare International Airport, CDA Project No. H1165.14-00, Sheet A554, prepared by Klein and Hoffman, Inc., Issued for Bid, September 12, 2018.



*Figure 10. Photograph of the east side of Concourse C, showing where the roof engages the facade directly.*



*Figure 11. Photograph of the east side of Concourse C at Gate C15, showing where roof engages the facade directly. Photograph courtesy of the CDA.*

The work includes repainting of the interior building wall elements and replacement of the interior perforated, acoustic, metal panels. The new panels match in-kind in material and color).

This scope of work also modifies the roof access. It eliminates the exterior, barrel-vault moving ladder and adds new ladders and platforms for roof access to provide maintenance (see Figure 14 and Figure 16). It also adds a track-mounted movable trolley fall arrest anchorage system to the ridge of the barrel vault to provide safety for workers needing to access the roof.

Changes are also made to provide new elements that better mitigate snow and ice retention. The bars and gutter extensions are visible but not significant visual elements on the roof.

## Concourse C before and after photographs

### Exterior – Barrel vault



*Figure 12. April 2019 photograph of the exterior of Concourse C before the roof repair project.*





*Figure 13. April 2019 photograph of the exterior of Concourse C before roof repair project.*



*Figure 14. Photograph of the exterior of Concourse C after completed work, showing new roof elements for access and ice/snow mitigation.*



*Figure 15. Photograph of the exterior of Concourse C after completed work, showing overall effect of the overcladding including color variation.*



*Figure 16. Photograph of the exterior of Concourse C after completed work, showing detail of new metal stairs and overclad panels and glazing units.*



## Exterior – Apse



Figure 17. Photograph of the exterior of Concourse C after completed work, showing detail of apse.  
Photograph courtesy of the CDA.

## Interior – General and detail shots of glazing in barrel vault and apse



Figure 18. April 2019 photograph of the interior of Concourse C, showing barrel vault along main circulation spine before roof repair project.





Figure 19. April 2019 photograph of the interior of Concourse C, showing apse at end of main circulation spine before roof repair project.



Figure 20. Photograph of the interior of Concourse C after completed work, showing barrel vault along main circulation spine with new glazing units throughout. It is not discernible that units are on now on outside rather than inset into framing.





Figure 21. Photograph of the interior of Concourse C after completed work, showing the main circulation spine. The subtle differences of tinted glass and border around the frit pattern can be discerned by a trained eye.

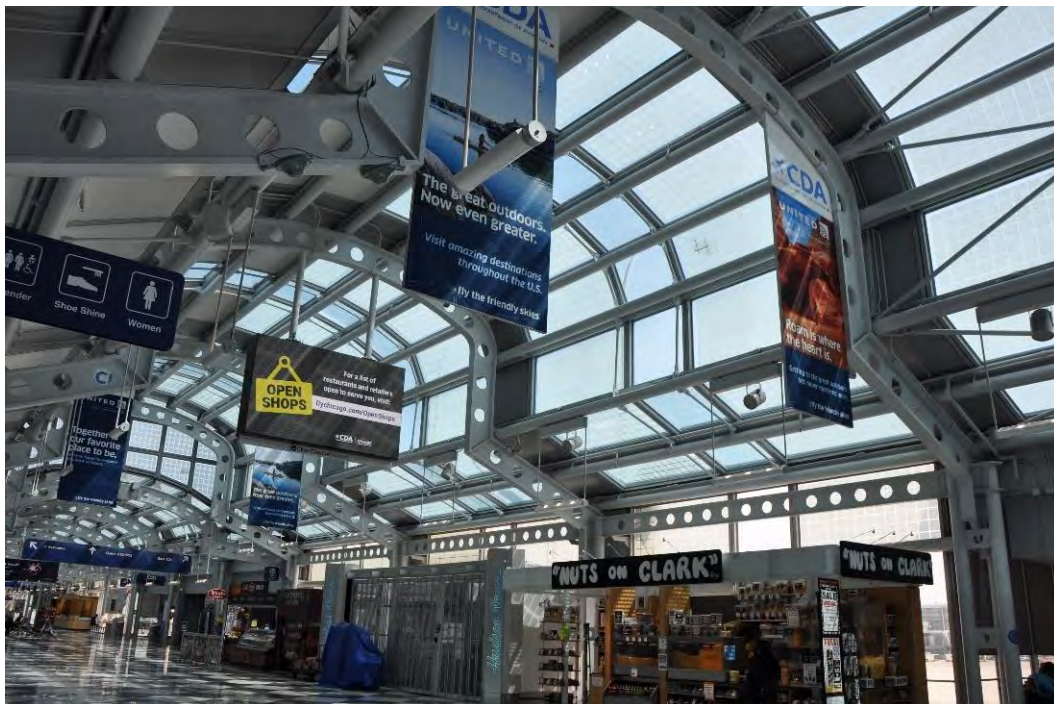


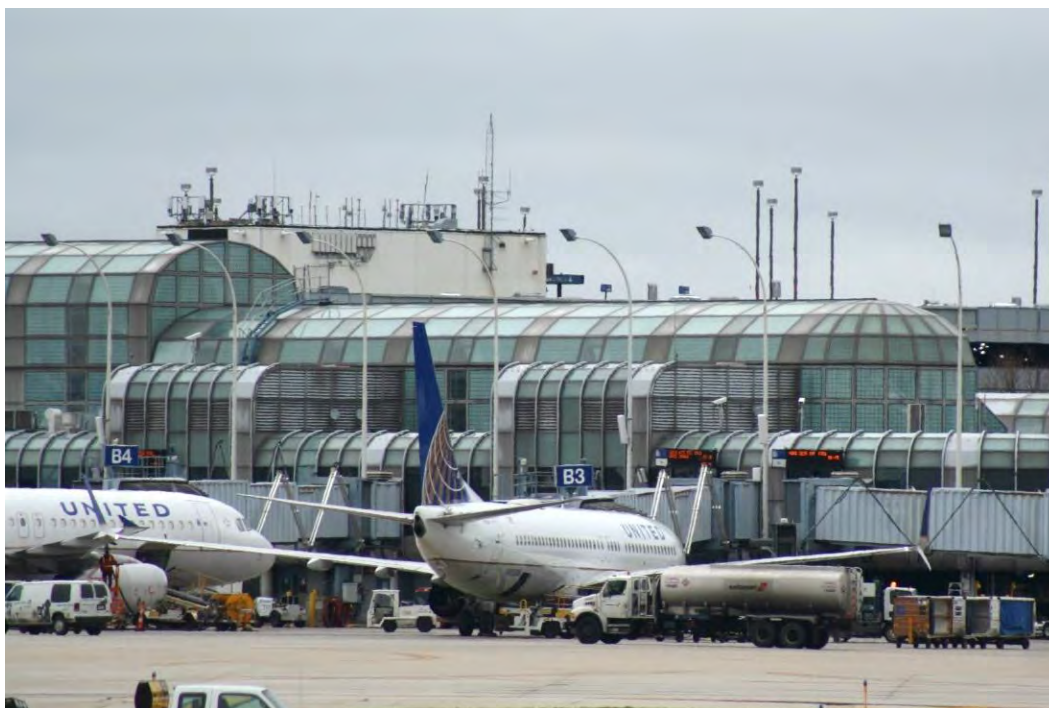
Figure 22. Photograph of the interior of Concourse C after completed work, showing barrel vault along main circulation spine. From this vantage point, any variation in color or installation method cannot be seen.





*Figure 23. Photograph of the interior of Concourse C after completed work, showing apse at end of main circulation spine. The border around frit block pattern and variation in hue can be discerned by a trained eye.*

### **Concourse B before and after photographs**



*Figure 24. 2019 photograph of Concourse B barrel vault and apse prior to work.*



*Figure 25. 2019 photograph of Concourse B apse prior to work.*



*Figure 26. Photograph of work in progress on Concourse B barrel vault and apse showing overlaid glazing and metals units on the right.*





*Figure 27. Photograph of work in progress on Concourse B apse showing overclad glazing and metal units on the vaulted area. The butt joints between units are narrower than the original horizontal and vertical dimensions, which are still visible on the vertical end wall.*



*Figure 28. Photograph of work in progress on Concourse B barrel vault and apse, showing the overclad glazing and metal units with clear color variation due to the clean condition of the new materials.*

## Current Assessment of Integrity

To be eligible for inclusion in the National Register, a property must exhibit sufficient historic integrity to convey its significance, in addition to being associated with one or more of the National Register Criteria. Based on the work already conducted and remaining work anticipated to complete the roof repair project, Terminal 1 was reevaluated for the seven aspects of integrity, including location, design, setting, materials, workmanship, feeling, and association. Overall, Terminal 1 retains strong historic integrity in all



aspects, especially in the primary public spaces of the terminal building. For discussion of alterations prior to 2019, see the original DOE.

This reevaluation concludes that alterations to the roof conducted in 2020-2021 do not substantially impair the historic integrity of Terminal 1. It also considers if the repair work complies with the Secretary of the Interior's Standards for Rehabilitation. The evaluation of integrity for Terminal 1 according to each aspect is detailed below.

- **Location** – Terminal 1 remains in its original location and therefore retains integrity of location.
- **Design** – Terminal 1 retains overall integrity of design in the general layout, style, structure, and artistic features of the primary public spaces, with alterations as discussed below. Exterior alterations include over-cladding the barrel vault of both concourses by covering over the metal panels and replacing glass located in the barrel vault roof, replacing flat and low sloped roofing, and replacing the standing seam roofing over the Concourse B ticketing area. The newly installed roof system overlays the original barrel vault roof and framing system. Viewed from the exterior where visible airside or landside, the appearance is of a new vaulted roof with similar appearance to the original. The original roof design in terms of horizontal and vertical dimensions of glazing and metal panel units is generally retained, though the horizontal lines are visually reduced by the use of sealed joints instead of mullions. The exterior color is different both due to the clean new materials and the coating used on the glass, which gives certain bays a green hue and others a purple hue. The primary view of public spaces that is experienced by travelers through the airport is on the interior. Here the exposed steel, aluminum, and glass curtain wall system is retained following the original design. Steel columns and framing units are not altered. Glass that infilled these units are removed (100% of the glass) and replaced, set in the new aluminum framing system. The original metal panels are retained and visible on the interior but new metal panels are installed over the top and are visible from the exterior.

Only a trained eye would notice the subtle differences on the interior that include a tint to the glass and border around the frit pattern. The glass units are mounted on the outside of the framing system, instead of set within the framing; however, this is not visually discernible when viewed from the interior corridor. The distinctive features, spaces, and spatial relationships that characterize the property are retained. For details of glazing and metal panel alterations, see discussion of materials below. Other less prominent alterations include removing the exterior, barrel-vault moving ladder and adding new ladders, platforms, and movable trolley to provide for roof access for maintenance, as well as adding elements to the roof to mitigate snow and ice retention. Due to retention of the historic character of the primary public spaces, the alterations are not extensive enough to significantly diminish the overall historic integrity of the Terminal 1 design.

- **Setting** – Terminal 1 retains its integrity of setting within the larger O'Hare International Airport complex, which has not been substantially altered since the period of significance.

- **Materials** – Terminal 1 retains a combination of original and replicated materials in its primary public spaces including exposed steel, aluminum and glass curtain wall system, fritted glazing, structural glazed tile units, and terrazzo floors. Previously select areas of glazing had been replaced with acid-etched glass and a tinted film was applied to other panes, which affected a relatively small percentage of the glazing in the terminal. Under the roof repair project, 100% of the glazing units in the barrel vault and domed apse are replaced following previous patterns of clear, block fritted and striped etched patterned glass. The original individual unitized frame system remains intact below the new curtainwall. While the glazing was described in the plans and specifications as matching the color and reflectivity of the original glazing, due to the application of Low-E coating, the resulting exterior and interior visual appearance is different. From the exterior, certain bays have a green hue and others a purple hue. On the interior, a new border added around the glass frit pattern of the original glazing design is visible. While seen on fritted glazing throughout the interior, the border width is most prominent in the apse. Also on the interior, the coating gives a visual tint to the glass. On the interior, perforated, acoustic, metal panels are replaced and match in-kind in material and color. The exposed steel and aluminum framing components of the curtain wall system are unaffected. Due to the effort to match materials in-kind to the extent possible, though concessions were made to provide energy efficiency that affect the installation method and the hue of the glass, the integrity of materials within the terminal is sufficient to convey significance.
- **Workmanship** – Terminal 1 conveys integrity of workmanship in its primary public spaces through the appearance of the steel framing and connection points, fritted glass, terrazzo floors, tunnel artwork, and lighting features. Replacement materials are installed in keeping with the original workmanship.
- **Feeling** – Terminal 1 retains integrity of feeling through its continued use as an airport terminal, large expansive interiors, and extensive use of natural light. The retention of the building's historic design, materials, and workmanship in the primary public spaces collectively convey integrity of feeling as a representative of 1980s postmodern architecture.
- **Association** – Due to the cumulative retention of the above aspects of integrity, Terminal 1 retains strong integrity of association with the architect, Helmut Jahn, and postmodern airport terminal design.

Because the roof repair work was completed as an independent project, it was not subject to Section 106 review and the application of the Standards for Rehabilitation. This re-evaluation of eligibility considers how the Standards for Rehabilitation apply as they relate to a historic property's ability to retain its eligibility. The 10 Standards for Rehabilitation and associated guidelines acknowledge the need for and provide guidance to address exterior and interior alterations that may be needed to assure continued use. The Standards for Rehabilitation that are specifically applicable to the roof repair work on Terminal 1 are numbers 2, 5, 6, and 9. The remainder are not applicable for the nature of this work.

*Standard #2: The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces and spatial relationships that characterize a property will be avoided.*

*Standard #5: Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.*

Although a new framing system is overlaid on the barrel vault roof of Concourses B and C, the historic character of the property is retained and preserved. Distinctive materials, features, spaces, and spatial relationships on the interior are retained and preserved including the exposed steel, aluminum and glass curtain wall system, including steel columns and framing units. The metal frame and panels of the barrel vault roof are retained. The distinctive glass is replaced but retains its previous patterns of clear, block fritted and striped etched patterned glass in the same locations. The new system alters the horizontal dimensions of the barrel vault due to the replacement of the mullions with sealed joints and replaces the glass with the previous patterns of clear, block fritted and striped etched glass. However, this change does alter the features, finishes, spaces and spatial relationships, and construction techniques, primarily on the interior, that characterize Terminal 1.

*Standard #6: Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.*

The roof system is a deteriorated historic feature of Terminal 1. The existing glazing system does not function properly resulting in water leakage issues. Roof repairs completed and in progress include over-cladding the barrel vault of both concourses by covering over the existing metal panels and replacing glass located in the barrel vault roof. Sealed joints are used instead of mullions. Other repairs include replacing flat and low sloped roofing and replacing the standing seam roofing over the Concourse B ticketing area.

*Standard #9: New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work will be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.*

Exterior alterations resulting from the roof repairs do not impact the historic materials, features, and spatial relationships that characterize the property, which is the expansive vaulted glass curtain wall spaces and structural system primarily visible on the interior of the building, which is retained. The original roof design in terms of horizontal and vertical dimensions of glazing and metal panel units is generally retained, though the horizontal lines are visually reduced by the use of sealed joints instead of mullions.

## Recommendation

Terminal 1 displays significance under *Criterion C: Architecture*, including meeting *Criteria Consideration G*, and retains sufficient integrity to convey this significance. Overall the work was conducted in a manner that adheres to the Standards for Rehabilitation. Therefore, it is recommended that Terminal 1 should retain its 2019 determination of eligibility for listing in the National Register.

## **Appendix A.     FAA and SHPO Correspondence Regarding Terminal 1 Determination of Eligibility**





U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

Great Lakes Region  
Illinois, Indiana, Michigan,  
Minnesota, North Dakota,  
Ohio, South Dakota,  
Wisconsin

Chicago Airports District Office  
2300 East Devon Avenue  
Des Plaines, Illinois 60018

September 10, 2019

Mr. Anthony Rubano  
Acting Cultural Resources Coordinator  
State Historic Preservation Office  
IDNR – One Natural Resources Way  
Springfield, IL 62702-1271

Mr. Rubano:

Enclosed you will find a copy of a document entitled, *Determination of Eligibility: Terminal 1, Chicago O'Hare International Airport*. We request that you review the Federal Aviation Administration document to determine if you concur that Terminal 1 is eligible for listing on the National Register of Historic Places under Criterion C and Criterion G.

If you have any questions, please feel free to call me at (847) 294-7354.

Sincerely,

A handwritten signature in cursive script that reads "Amy B. Hanson".

Amy B. Hanson  
Environmental Protection Specialist  
Chicago Airports District Office  
Federal Aviation Administration

Cc: Aaron Frame, City of Chicago Department of Aviation  
Jamie Rhee, City of Chicago Department of Aviation



## Illinois Department of Natural Resources

One Natural Resources Way Springfield, Illinois 62702-1271

[www.dnr.illinois.gov](http://www.dnr.illinois.gov)

Mailing Address: 1 Old State Capitol Plaza, Springfield, IL 62701

JB Pritzker, Governor  
Colleen Callahan, Director

FAX (217) 524-7525

Cook County

Chicago

National Register Eligibility, Terminal 1 at O'Hare International Airport

Terminal 1 - 10000 W. O'Hare Ave.

SHPO Log #001091219

September 12, 2019

Amy Hanson  
U.S. Department of Transportation  
Federal Aviation Administration  
Chicago Airports District Office  
2300 E. Devon Ave., Suite 201  
Des Plaines, IL 60018

Dear Ms. Hanson:

Thank you for requesting comments from our office concerning the possible effects of your project on cultural resources. Our comments are required by Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations, 36 CFR 800: "Protection of Historic Properties".

In our opinion, this property meets Criterion "C" with Criterion consideration "G" at the national level of significance for the National Register of Historic Places.

If you have any questions, please call 217/782-4836.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert F. Appleman".

Robert F. Appleman  
Deputy State Historic  
Preservation Officer

c: Aaron Frame, Deputy Commissioner, Chicago Department of Aviation  
Jamie Rhee, Commissioner, Chicago Department of Aviation

## **Appendix B. Terminal Determination of Eligibility (August 2019)**

**See Attachment G-2.1 for the complete  
Terminal 1 Determination of Eligibility**



## **Appendix C.      Terminal 1 Roof Repair Photographs (March 2021)**

# Terminal 1 Roof and Glazing Rehabilitation Project Photographs

March 4, 2021



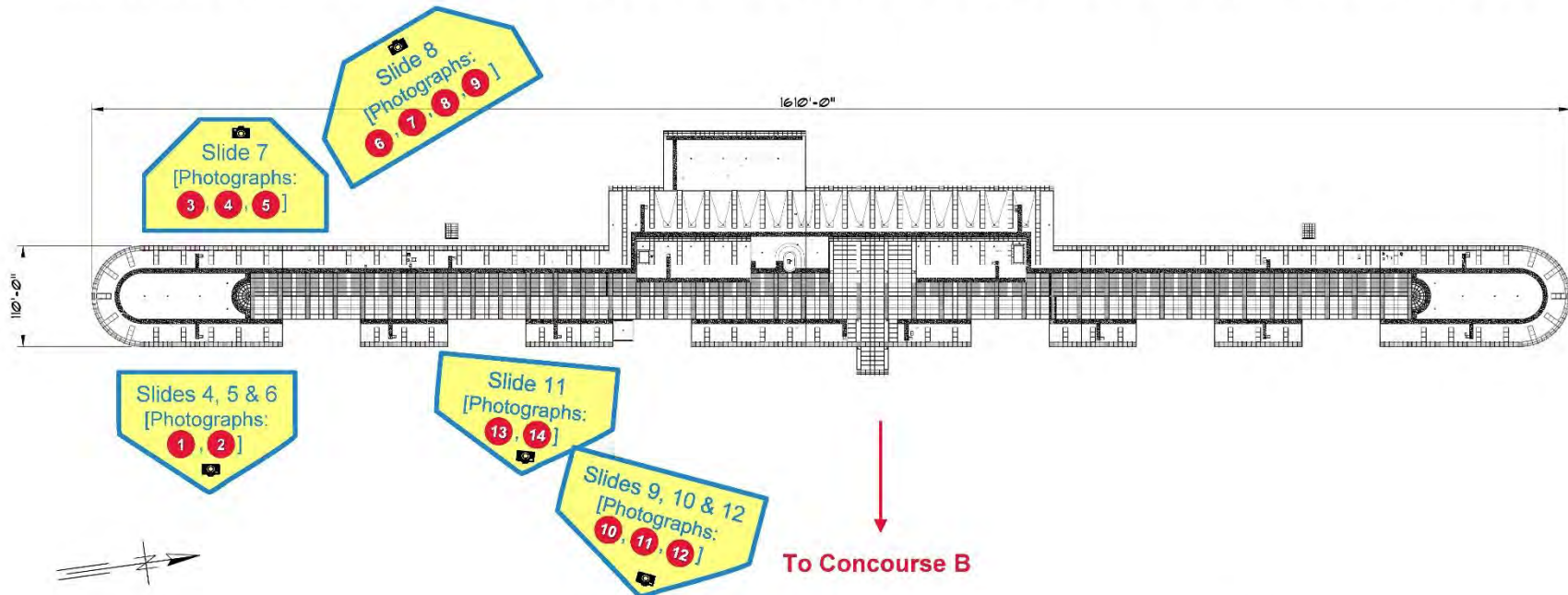
## INTRODUCTION

- The photographs included in this presentation were taken in response to comments provided by the Federal Aviation Administration (FAA) on February 10, 2021, as follows,<sup>1/</sup> with additional clarifications provided on February 18, 2021:<sup>2/</sup>
  - *“We request airside photographs of Concourse C’s new roof showing the roof and glazing rehabilitation and the skylight over cladding at the following locations:*
    - *Half dome at one end of the concourse*
    - *Barrel vaulted height spine from the sides*
    - *Lower flat roof on either side of the spine*
  - *Please provide both overview and detailed shots from where an ops vehicle can go, with sufficient information to understand how the roof rehabilitation interacts with the original design.”*

NOTES: 1/ Email from Amy B. Hanson, Environmental Protection Specialist, Federal Aviation Administration, to Aaron J. Frame, Deputy Commissioner – Environment and Planning, Chicago Department of Aviation, “FW: ORD TAP - Terminal 1 roof repair photo request,” February 10, 2021.

2/ Email from Christina Slattery, Mead & Hunt, to Eugene Peters, Ricondo & Associates, “FW: ORD TAP - Terminal 1 roof repair photo request,” February 18, 2021.

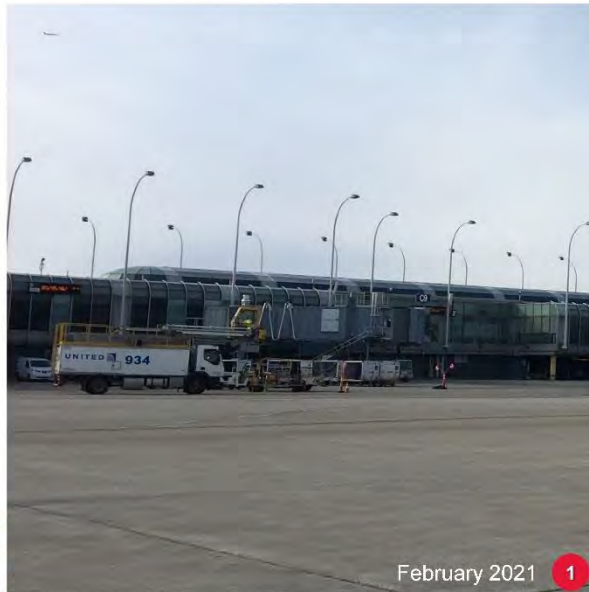
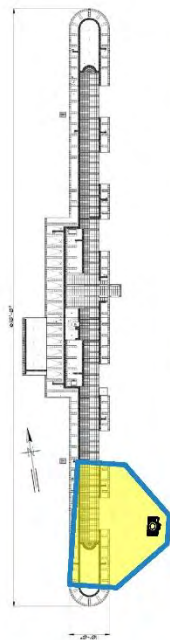
## CONCOURSE C ROOF PLAN AND APPROXIMATE PHOTOGRAPH LOCATIONS



SOURCE: Chicago Department of Aviation, "Terminal 1 Roof and Glazing Rehabilitation," CDA Project No. H1165.14-00, Issued for Bid, Drawing Number T100, September 12, 2018.



## CONCOURSE C SOUTH END – VIEW FACING WEST (HALF DOME APSE FEATURE AND LOWER FLAT ROOF ON SIDE OF SPINE)



SOURCE: Chicago Department of Aviation, February 23, 2021.

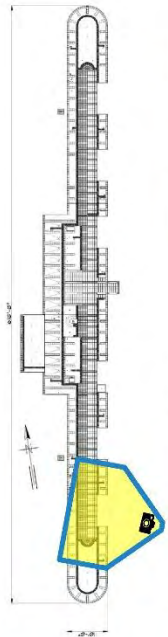
**O'HARE**  
INTERNATIONAL AIRPORT

MARCH 4, 2021

4

**CDA**  
CHICAGO DEPARTMENT OF AVIATION

## CONCOURSE C SOUTH END – VIEW FACING WEST (HALF DOME APSE FEATURE AND LOWER FLAT ROOF ON SIDE OF SPINE)



SOURCE: Chicago Department of Aviation / Midwest Archaeological Research Services, January 17, 2018.



SOURCE: Chicago Department of Aviation, February 23, 2021.

**O'HARE**  
INTERNATIONAL AIRPORT

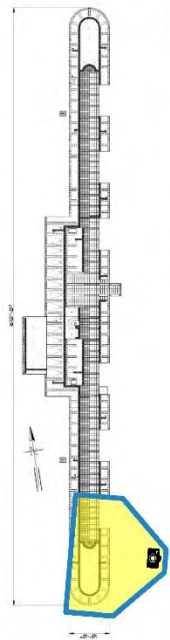
MARCH 4, 2021

5

**CDA**  
CHICAGO DEPARTMENT OF AVIATION



## CONCOURSE C SOUTH END – VIEW FACING WEST (HALF DOME APSE FEATURE)



**BEFORE PROJECT: JANUARY 2018**



SOURCE: Chicago Department of Aviation / Midwest Archaeological Research Services, January 17, 2018.

**FEBRUARY 2021**



SOURCE: Chicago Department of Aviation, February 23, 2021.

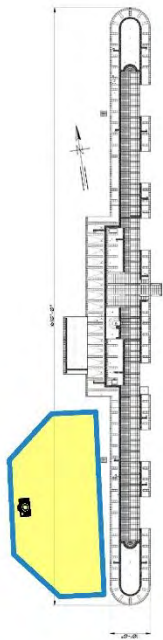
**O'HARE**  
INTERNATIONAL AIRPORT

MARCH 4, 2021

6

**CDA**  
CHICAGO DEPARTMENT OF AVIATION

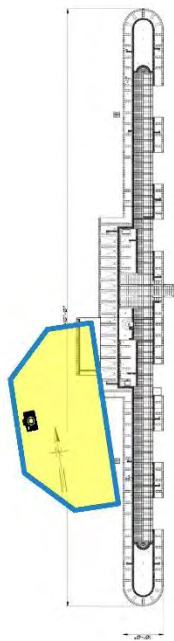
## CONCOURSE C SOUTH END – VIEW FACING EAST (HALF DOME APSE FEATURE AND LOWER FLAT ROOF ON SIDE OF SPINE)



SOURCE: Chicago Department of Aviation, February 23, 2021.



## CONCOURSE C WEST SIDE – VIEW FACING EAST (LOWER FLAT ROOF ON SIDE OF SPINE)



February 2021 6



February 2021 7



February 2021 8



February 2021 9

SOURCE: Chicago Department of Aviation, February 23, 2021.

\*\*\*  
**O'HARE**  
INTERNATIONAL AIRPORT —>

MARCH 4, 2021

8

**CDA**  
CHICAGO DEPARTMENT OF AVIATION

## CONCOURSE C EAST SIDE – VIEW FACING WEST (BARREL VAULTED HEIGHT SPINE FROM SIDE)



SOURCE: Chicago Department of Aviation, February 23, 2021.

**O'HARE**  
INTERNATIONAL AIRPORT

MARCH 4, 2021

9

**CDA**  
CHICAGO DEPARTMENT OF AVIATION



## CONCOURSE C EAST SIDE – VIEW FACING WEST (BARREL VAULTED HEIGHT SPINE FROM SIDE)



SOURCE: Chicago Department of Aviation / Midwest Archaeological Research Services, January 17, 2018.



SOURCE: Chicago Department of Aviation, February 23, 2021.

## CONCOURSE C EAST SIDE – VIEW FACING WEST (BARREL VAULTED HEIGHT SPINE FROM SIDE)



February 2021 13

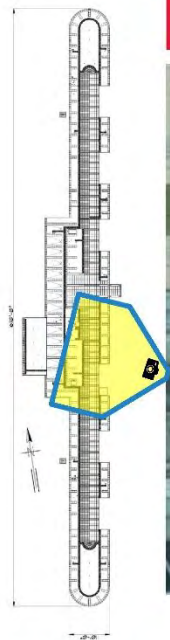


February 2021 14

SOURCE: Chicago Department of Aviation, February 23, 2021.



## CONCOURSE C EAST SIDE – VIEW FACING WEST (BARREL VAULTED HEIGHT SPINE FROM SIDE)



**BEFORE PROJECT: AUGUST 2019**



SOURCE: U.S. Department of Transportation, Federal Aviation Administration, *Determination of Eligibility: Terminal 1, Chicago O'Hare International Airport*, prepared by Mead & Hunt, Figure 32, page 23, August 19, 2019.

**FEBRUARY 2021**



SOURCE: Chicago Department of Aviation, February 23, 2021.

### **G-2.3. Rotunda**



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

Great Lakes Region  
Illinois, Indiana, Michigan,  
Minnesota, North Dakota,  
Ohio, South Dakota,  
Wisconsin

Chicago Airports District Office  
2300 East Devon Avenue  
Des Plaines, Illinois 60018

November 4, 2019

Mr. Anthony Rubano  
Acting Cultural Resources Coordinator  
State Historic Preservation Office  
IDNR – One Natural Resources Way  
Springfield, IL 62702-1271

Mr. Rubano:

Enclosed you will find a copy of a document entitled, *Determination of Eligibility: Rotunda, Chicago O'Hare International Airport*. We request that you review the Federal Aviation Administration document to determine if you concur that the Rotunda is eligible for listing on the National Register of Historic Places under Criterion A: Transportation and Criterion C: Architecture.

If you have any questions, please feel free to call me at (847) 294-7354.

Sincerely,

A handwritten signature in black ink that reads "Amy B. Hanson". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Amy B. Hanson  
Environmental Protection Specialist  
Chicago Airports District Office  
Federal Aviation Administration

Cc: Aaron Frame, City of Chicago Department of Aviation  
Jamie Rhee, City of Chicago Department of Aviation



## Illinois Department of Natural Resources

One Natural Resources Way Springfield, Illinois 62702-1271

[www.dnr.illinois.gov](http://www.dnr.illinois.gov)

Mailing Address: 1 Old State Capitol Plaza, Springfield, IL 62701

JB Pritzker, Governor  
Colleen Callahan, Director

FAX (217) 524-7525

Cook County

Chicago

National Register Eligibility, Rotunda at O'Hare International Airport

10000 W. O'Hare Ave.

SHPO Log #016120219

December 18, 2019

Amy Hanson

U.S. Department of Transportation

Federal Aviation Administration

Chicago Airports District Office

2300 E. Devon Ave., Suite 201

Des Plaines, IL 60018

Dear Ms. Hanson:

Thank you for requesting comments from our office concerning the possible effects of your project on cultural resources. Our comments are required by Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations, 36 CFR 800: "Protection of Historic Properties".

We concur with your finding that the Rotunda at O'Hare International Airport is eligible for listing on the National Register of Historic Places.

If you have any questions, please call 217/782-4836.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert F. Appleman".

Robert F. Appleman  
Deputy State Historic  
Preservation Officer

c: Aaron Frame, Deputy Commissioner, Chicago Department of Aviation  
Jamie Rhee, Commissioner, Chicago Department of Aviation



# **Determination of Eligibility: Rotunda**

## **Chicago O'Hare International Airport**

Prepared for the  
**Federal Aviation Administration**

Prepared by



[www.meadhunt.com](http://www.meadhunt.com)

November 2019

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**Executive Summary****Executive Summary**

The historical evaluation of the Rotunda at O'Hare International Airport (O'Hare, or "the airport") supports Federal Aviation Administration (FAA) requirements for compliance with the National Environmental Policy Act (NEPA) and Section 106 regulations issued pursuant to the National Historic Preservation Act (NHPA), as amended (36 CFR Part 800). As part of its review of the City of Chicago's proposed Airport Layout Plan (ALP) modification, FAA is conducting a NEPA process for the proposed Terminal Area Plan (TAP) and other ALP modifications. In April 2019 FAA engaged Mead & Hunt, Inc. (Mead & Hunt), through a third-party contract, to complete a National Register of Historic Places (National Register) evaluation of the Rotunda.

Completed in 1963, the Rotunda is a Mid-century Modern building featuring expansive glass windows and a radial cable-suspended roof. The multi-level and multi-purpose space originally featured the Seven Continents Restaurant and lounge on the mezzanine level with views to the adjacent airfield. The concourse level was a coffee shop overlooking the airfield and other food concessionaires. The Rotunda is located at the juncture of Terminal 2 (to the west), Terminal 3 (to the east), and Concourse G (to the south). Glass-enclosed, concourse-level walkways, referred to as "links" on as-built terminal plans, connect Terminals 2 and 3 to the Rotunda. Concourse G is attached to the southern perimeter of the Rotunda and connects directly into the Rotunda (unlike Terminal 2 and 3). The southern exterior of the Rotunda faces airside taxiways, airline gates, and aircraft service area. The northern exterior faces the FAA office building and Main Control Tower, the O'Hare Hilton Hotel, Elevated Parking Building, and Chicago Department of Aviation Control Tower.

The Rotunda exemplifies the 1961-63 expansion of O'Hare to serve an important transportation need and displays significance under *Criterion A: Transportation*. It also possesses significance under *Criterion C: Architecture* as a significant expression of jet age architecture (the age that heralded the introduction of jet-engine-powered aircraft into commercial transportation in the late 1950s), as it relates to airport design and as a representative work of influential master architect Gertrude Lempp Kerbis. The Rotunda retains historic integrity in six of seven aspects, with its setting compromised by adjacent construction after its period of significance (1961-63). As a result, the Rotunda is recommended eligible for listing in the National Register.

## Executive Summary

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## Section 1 Description

### 1. Description

#### A. Overall setting and context

Located in northeastern Illinois, Chicago O'Hare International Airport (ORD, also referred to as "O'Hare" or "the airport") occupies an approximately 8,200-acre site that straddles the Cook/DuPage County line to include areas within the city limits of Chicago, Des Plaines, Schiller Park, and Rosemont. The airport is sited approximately 17 miles northwest of Chicago's Central Business District and a variety of light industrial, commercial, residential, and public land uses surround the airport property. The airport itself consists of a central group of terminals (Terminals 1, 2, 3, and 5) encircled by taxiways and surrounded by runways (see Figure 1). Cargo facilities are located at southeast, southwest, and northeast portions of the airport. The general aviation facility is in the northeast corner of the airport, and fuel storage facilities are located at the northwest corner. Public surface parking areas are located along the central and northeast portions of the airport. The Federal Aviation Administration (FAA) North Control Tower is located in the northwest corner of the property, while the FAA South Control Tower is located in the cargo facilities area on the southwest side of the airport. Other support facilities in the areas on the south, northwest, and northeast portions of the property include those for airline support and maintenance, aircraft rescue and firefighting, a post office, and Transportation Security Administration (TSA).

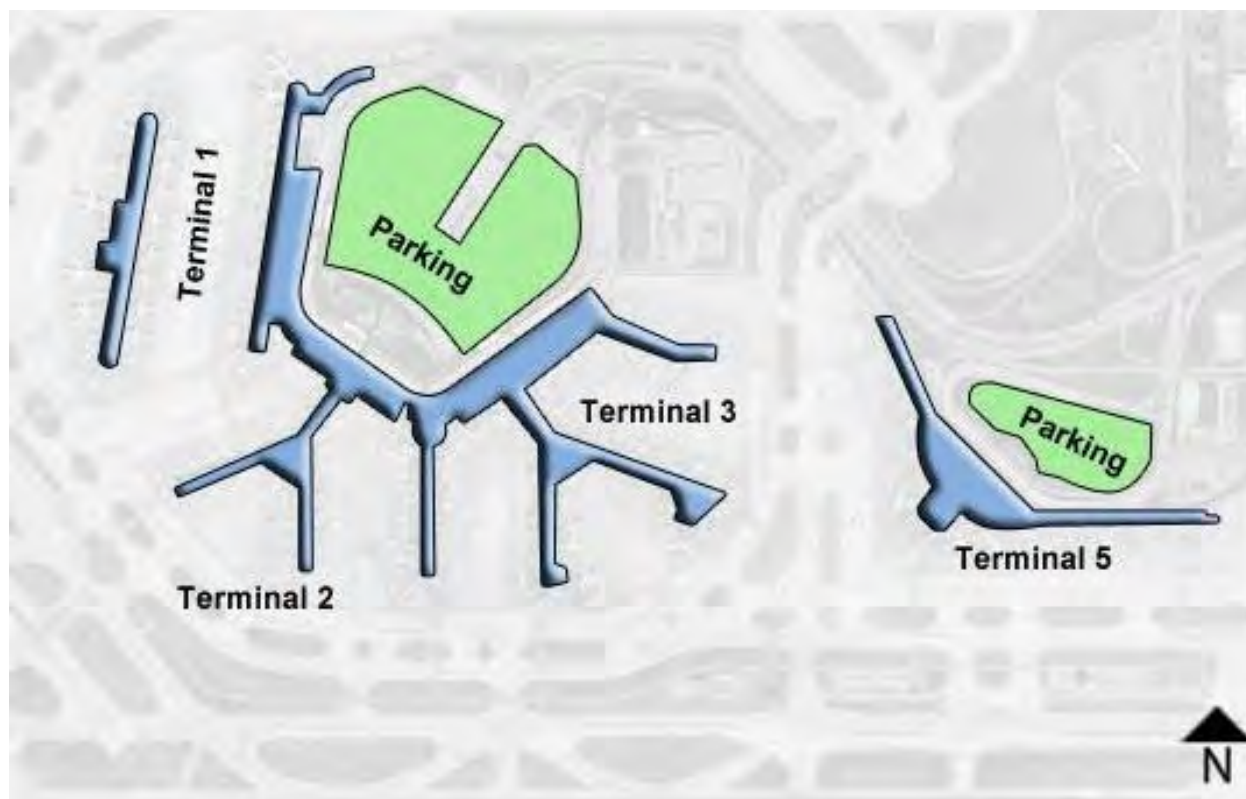


Figure 1. Map of terminals and parking areas at ORD.<sup>1</sup>

<sup>1</sup> "Chicago Ohare (ORD) Airport Terminal Map," *IFly.Com*, accessed June 5, 2019, <https://www.ifly.com/chicago-ohare-international-airport/terminal-map>.

## Section 1 Description

At the center of the property, Terminals 1, 2, and 3 form the Terminal Core Area, arranged in a U-shaped plan that opens to the northeast. The interior of the U is occupied by two large parking lots, bisected by a central roadway that provides access to the Elevated Parking Building. Terminal 1 forms the west side of the U-plan. The O'Hare Hilton Hotel is located between the Elevated Parking Building and Terminal 2 (the base of the U), and the City of Chicago Department of Aviation (CDA) Control Tower (formerly a FAA control tower) is centered on a grassy plaza that separates the hotel from Terminal 2. The Rotunda is located at the juncture of Terminal 2 (to the west), Terminal 3 (to the east), and Concourse G (see Figure 2 through Figure 4). Glass-enclosed, concourse-level walkways, referred to as "links" on as-built terminal plans, connect Terminals 2 and 3 to the Rotunda.<sup>2</sup> Immediately adjacent to the north perimeter wall of the circular Rotunda is a three-story FAA office building, which was designed to match the curve of the Rotunda but does not touch the building, and the 1995 FAA Main Control Tower. Concourse G is attached to the southern perimeter of the Rotunda and connects directly into the Rotunda (unlike Terminal 2 and 3). The southern exterior of the Rotunda faces airside taxiways, airline gates, and aircraft service area.



Figure 2. Location of Rotunda in relation to terminals and other airport buildings and structures at O'Hare.

<sup>2</sup> Naess & Murphy Architects-Engineers, "As-Built Plans for Building No. 8, Area 8A, Link No. 4, Chicago O'Hare International Airport," June 1964, RB 28-8-A1, Available in the Chicago Department of Aviation files, Chicago; Based on plan review the enclosed links connecting the Rotunda to Terminal 2 and Terminal 3 were planned as part of the terminal construction.



## Section 1 Description



*Figure 3. Aerial view illustrating the Rotunda's relationship to Terminal 2 (lower right), Terminal 3 (at left), Concourse G (upper right), and the FAA office building and Main Control Tower (center), view facing southeast.*



*Figure 4. Overview of Rotunda and surrounding buildings, view facing northwest.*

The outside of the U formed by Terminals 1, 2, and 3 is occupied by a total of 168 contact gates and 15 remote hardstands.<sup>3</sup> Terminals 2 and 3 have concourses that extend onto the aprons in a perpendicular or Y shape, while Terminal 1 has a concourse (Concourse B) with gates along the west side of the main terminal building and a separate, parallel concourse (Concourse C) accessed via an underground tunnel.

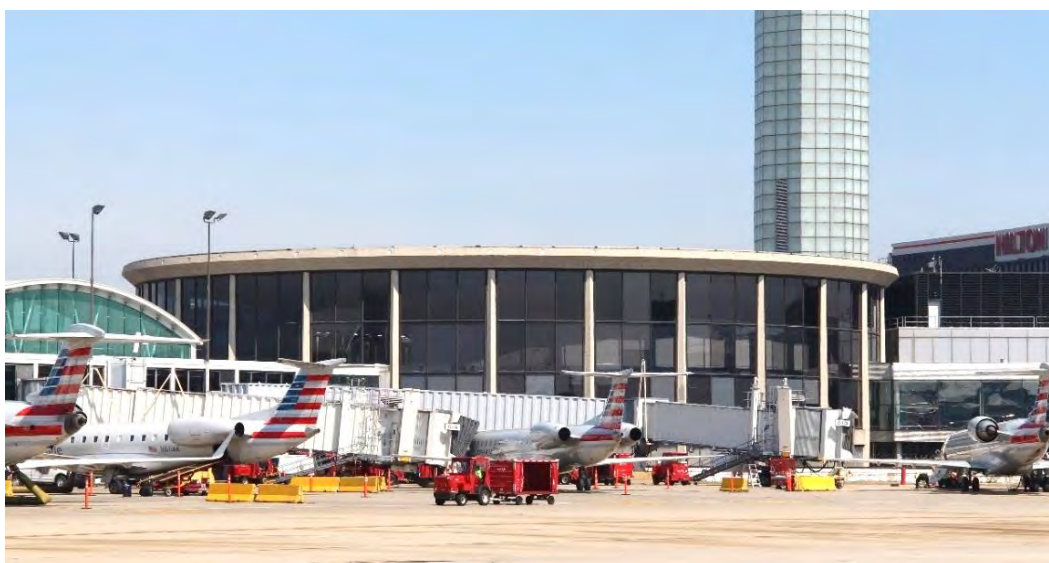
<sup>3</sup> Aircraft parked at remote hardstand positions are accessed via shuttle bus rather than jet bridge.

## Section 1 Description

Interstate Highway 190 (I-190) and the Chicago Transit Authority (CTA) O'Hare Rapid Transit Blue Line Rail Service enter the airport from the east. The Blue Line follows the central roadway to the parking area, where the O'Hare CTA Station is located below ground. The Airport Transit System (ATS) links the three domestic terminals, the international terminal, and the long-term parking area to the northeast by rail; the ATS is accessible via a transfer station from the Metra commuter rail service. Within the Terminal Core Area, the ATS tracks and a two-level vehicular circulation roadway separate the parking lot, garage, hotel, and CDA control tower from the terminals. The upper roadway level provides access to the ticketing area for departing passengers while the lower level provides access to the baggage claim and transportation for arriving passengers. ATS stations are located opposite each of the three terminals (as well as at Terminal 5) and are linked via covered pedestrian walkways across the roadway.

### B. Overview of the Rotunda

Completed in 1963, the Rotunda is a Mid-century Modern building featuring expansive glass windows and a radial cable-suspended roof (see Figure 5).<sup>4</sup> The multi-level and multi-purpose space originally featured the Seven Continents Restaurant and lounge on the mezzanine level with views to the adjacent airfield. The concourse level was a coffee shop overlooking the airfield and other food concessionaires. However, since the 1990s, the mezzanine and concourse level spaces have undergone changes and reconfiguration. An original escalator from the concourse level to the mezzanine was removed in the 1990s.



*Figure 5. Rotunda overview, view looking northwest. Portions of Concourse G are visible at left, portions of the glass-enclosed walkway to Terminal 3 are visible at right, and portions of the FAA Airport Main Traffic Control Tower and FAA office building are visible in the background.*

#### (1) Exterior description

The three-story Rotunda consists of a subgrade basement level and three above-grade stories that include the apron level, concourse level, and mezzanine level. The building rests on a concrete

<sup>4</sup> The Rotunda comprises CDA building number 250.

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foundation. It has a circular plan with a 190-foot diameter and stands 58 feet tall. Its circular plan stands in stark contrast to the other rectangular terminals and concourses at O'Hare both at the time of its construction and at present. The building has a concrete structural system that consists of sculpted concrete columns arranged in a circle around the building's perimeter. The columns support a large concrete perimeter ring that caps the building and overhangs the outer walls. Small, evenly spaced circles along the outer edge of the roof delineate cable anchor points for the building's roof system (see Figure 6 through Figure 7). Approximately 60 percent of the original plate glass on the curtain walls has been replaced with safety glass; the tint of the new glass is slightly lighter than the original plate glass.<sup>5</sup> Windows on the north side of the building, where it faces the adjacent FAA office building, are infilled with non-original synthetic panels at the concourse and mezzanine levels. At the apron level, spaces between exterior concrete columns are infilled with pre-cast concrete panels with exposed aggregate and steel-frame glass curtain walls at the concourse and mezzanine levels. Service entrances are located at the apron level on the west side (see Figure 6).



*Figure 6. Overview of Rotunda exterior, illustrating the sculpted concrete columns, glass curtain walls, and concrete perimeter ring. A service entrance at the apron level is located directly below the enclosed glass walkway near the center of the photograph.*

<sup>5</sup> Dorothy Izewski Supervising Architect, City of Chicago, Interview with Mead & Hunt, Inc., Chicago, May 29, 2019.



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*Figure 7. Detail view of sculpted concrete columns that support the concrete perimeter ring at the top of the building. The small circles along the outer edge of the roof are the anchor points for the roof cables.*

The Rotunda's roof structure is comprised of 6-inch-thick, pre-cast, tapered concrete slabs integrated with a radial system of steel cables strung between a concrete compression ring around the building's perimeter and a steel tension ring at the center of the building (see Figure 8). The concrete roof slabs are hooked on the cable system and their weight puts the cables and roof in a constant state of tension; this results in the roof having the shape of an inverted dome. This roof system eliminated the need for interior support columns and provided unobstructed outward views from the mezzanine level, the original location of the Seven Continents Restaurant. Three mechanical penthouses are located halfway toward the middle of the circular roof. A skylight covers the opening inside the central tension ring.



## Section 1

### Description

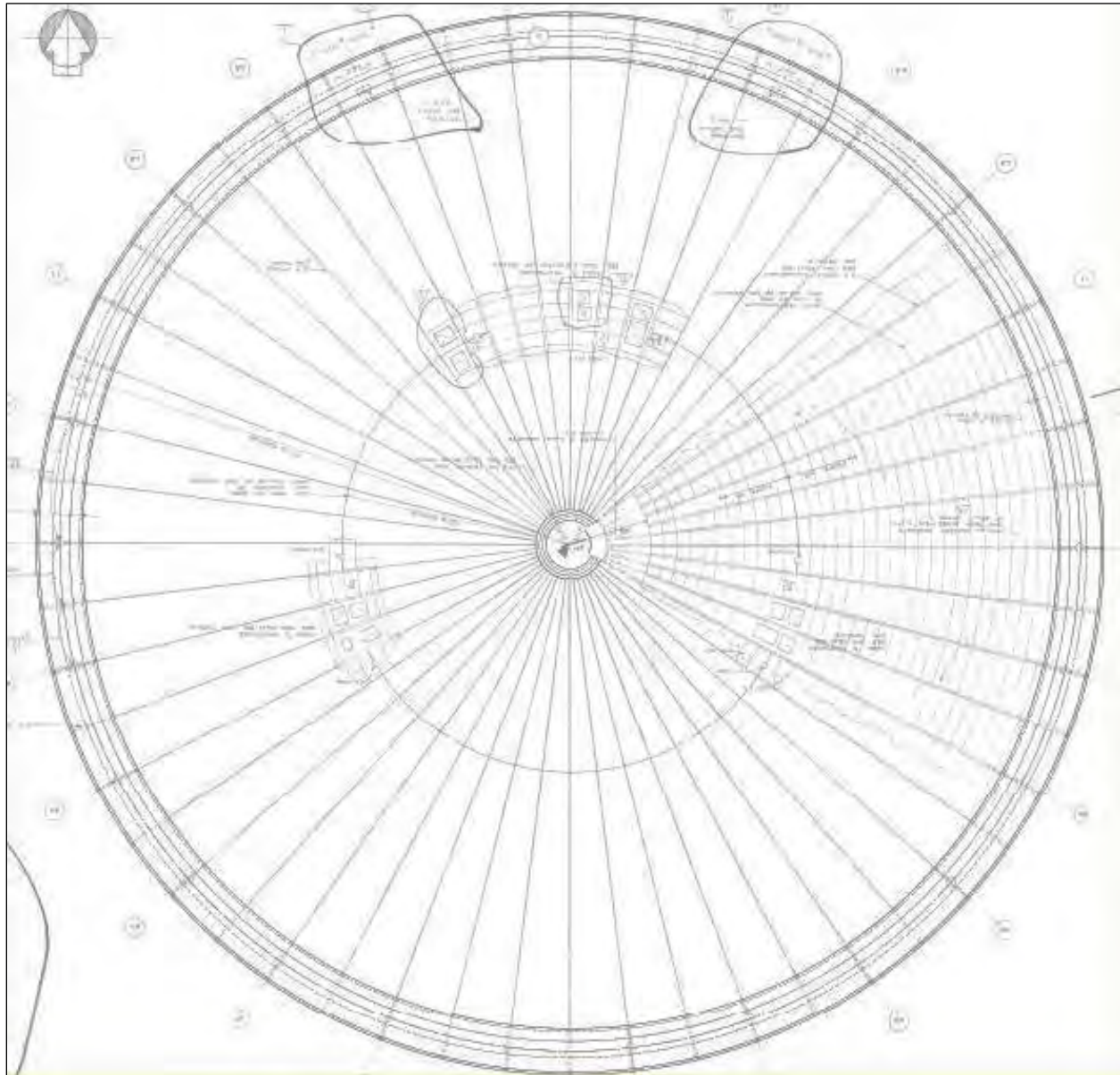


Figure 8. Excerpt from 1964 as-built plan set illustrating the roof system. A system of radial cables is strung between a tension ring at the center and a compression ring along the perimeter of the building.<sup>6</sup>

### (2) Interior description

The interior of the Rotunda consists of four levels: the concourse and mezzanine, which are public spaces, and the apron and basement levels, which are non-public spaces. The spatial arrangement of interior spaces on all levels is heavily influenced by the circular shape of the perimeter wall and subsequent interior walls that together create a series of concentric circles around which interior spaces are organized (see Figure 9 through Figure 10).

<sup>6</sup> Naess & Murphy Architects-Engineers, "As-Built Plans for Contract No. RB 42, Terminal Area Restaurant Building, Structural & Curtain Wall Framing, Chicago O'Hare International Airport," June 1964, Available in the Chicago Department of Aviation files, Chicago.

## Section 1 Description



Figure 9. Excerpt from a 1964 as-built plan set illustrating the basement (in yellow), apron level (in green), concourse level (in blue), and mezzanine level (in red) within the Rotunda. Shown at center are the original escalator and concrete stairs.<sup>7</sup>

<sup>7</sup> Naess & Murphy Architects-Engineers, "As-Built Plans for Contract No. RB 42, Terminal Area Restaurant Building, Structural & Curtain Wall Framing, Chicago O'Hare International Airport."

## Section 1 Description

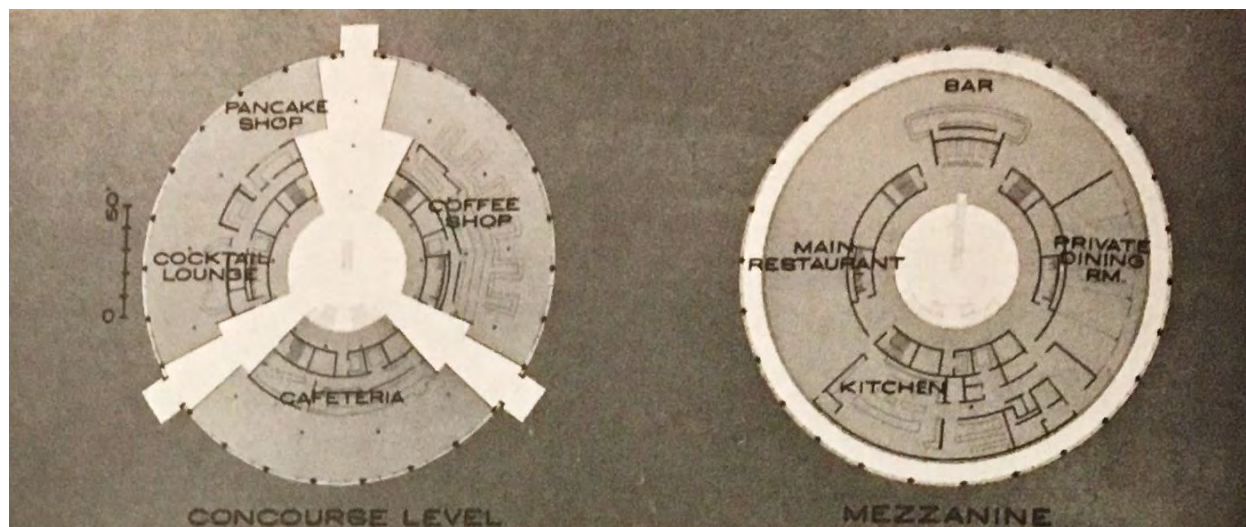


Figure 10. 1963 plan of the Rotunda's concourse level and mezzanine level.<sup>8</sup>

### (3) Concourse level

The Rotunda's concourse level connects to Terminals 2 and 3 and Concourse G. The concourse level currently serves as the location of a restaurant, food court, concessions, and as a pass-through for travelers walking between Terminals 2 and 3 and Concourse G. The concourse level is also the first floor of a two-story atrium that fills the entire footprint and upper portions of the building. The mezzanine serves as the second floor of the two-story atrium and is suspended above the concourse level; its concentric circular floorplan leaves two-story open spaces along the perimeter wall and at the center of the Rotunda, creating an interior atrium. The concourse level consists of this interior atrium and restaurants.

The ceiling serves as a dramatic focal point for the entire space, created by a central oculus with axial ribs that radiate outward like spokes. The ribs gradually increase in depth from the perimeter wall as they extend toward the oculus (see Figure 11). Recessed panels fill the space between each rib. Two parallel rows of square panels extend around the outer edge of the roof's interior (see Figure 12). Historic photographs confirm this feature is original but each square panel has been infilled. Mounted on the underside of the ceiling beneath the oculus is a ring-shaped housing with nonoriginal can lights along its top surface and inset into its bottom surface. Originally, evenly spaced pendant lights hung from in between each rib (see Figure 13 and Figure 14). This dramatic ceiling is visible from both the concourse and mezzanine levels.

<sup>8</sup> "Our Two Largest Airports," *Progressive Architecture* XLIV, no. 8 (August 1963): 110.



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*Figure 11. Oculus and axial ribs at the center of the Rotunda provide a focal point for the space. Recessed lighting at the oculus is not original.*



*Figure 12. Parallel rows of square panels extend around the outer edge of the ceiling. Note circular infilled areas where original ceiling mounted lighting was removed.*



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*Figure 13 and Figure 14. Historic (left) and current (right) photographs of the Rotunda illustrating changes to the inner atrium at the concourse and mezzanine levels. Changes include removal of original escalator (at far left of Figure 13), installation of decorative terrazzo floor detail, signage added to mezzanine level, installation of non-original ceiling panels, and removal of pendant lights in between ribs. Historic photograph credit: HB-29048, Chicago History Museum, Hedrich-Blessing Collection, © 2019 Chicago Historical Society, all rights reserved.*

At the center of the concourse level is the full-height inner atrium (see Figure 15 and Figure 16). Portions of outer walls on the circular inner atrium are accented with original vertical wood ribbing; much of this ribbing has been covered with metal but it retains the general width and spacing of the original feature (see Figure 17). The inner atrium has original terrazzo flooring that features a nonoriginal multi-color decorative design near the center of the floor installed in the 1990s when the escalator was removed (see Figure 18). Several food concessions are located along the southwest curve of the inner atrium. Two sculptural concrete staircases on the north side of the inner atrium follow the contour of the circular room and are mirror images of one another. Each staircase has a steel railing, terrazzo finish, and two flights of stairs; both share a landing at the top of their first seven-stair flight before extending in opposite directions up the second flight of 17 stairs. An elevator is located behind the staircase landing.

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Figure 15. Overview of the inner atrium and concrete staircases. Modern signage has been added at the mezzanine level, as well as slatted metal covering over original wood ribbing.



Figure 16. Inner atrium of the concourse level. Murals have been painted on the sides of the mezzanine level.



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*Figure 17. Vertical wood ribbing detail located along the walls on the outer edge of the inner atrium. This original detail is currently obscured by a flight monitor kiosk and much is now covered with metal (shown at far left).*



*Figure 18. Terrazzo floor with non-original decorative detail located in the inner atrium of the concourse level. The decorative terrazzo floor design was installed after an escalator was removed from this space in the 1990s.*

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Between the inner atrium and the two-story portion of the atrium along the building's perimeter wall is a pass-through space. This transitional space features a lower ceiling height, which corresponds to the bottom of the circular mezzanine level above, and support columns throughout (see Figure 19). The spatial contrast between this pass-through space and the two-story inner atrium serves to emphasize the interior design and architectural and structural features of the Rotunda.



*Figure 19. Columns throughout the concourse level support the mezzanine above. The inner atrium is visible at right in the background through the corridor and the main atrium is visible at left along the perimeter wall and windows.*

Situated in a radial pattern along the perimeter wall of the concourse level are a sports bar; café and concession; food court and associated back-of-the-house food preparation areas, coolers, and storage areas; additional food vendors along the wall of the inner atrium; customer seating areas; and offices (see Figure 20 through Figure 24). Nonoriginal partition walls, ceramic tile flooring, and synthetic wood flooring are located throughout the food service areas, both front- and back-of-the-house. Original interior finishes in the non-public storage and food preparation areas include original tile flooring and white enamel wall tiles in the office and storage spaces on the west side of the concourse level.



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*Figure 20. Sports bar located on the concourse level of the Rotunda.*



*Figure 21. Food court located on the concourse level of the Rotunda. Original windows along this curved exterior wall were infilled with non-original synthetic panels at the time of construction of the adjacent FAA building to the north.*

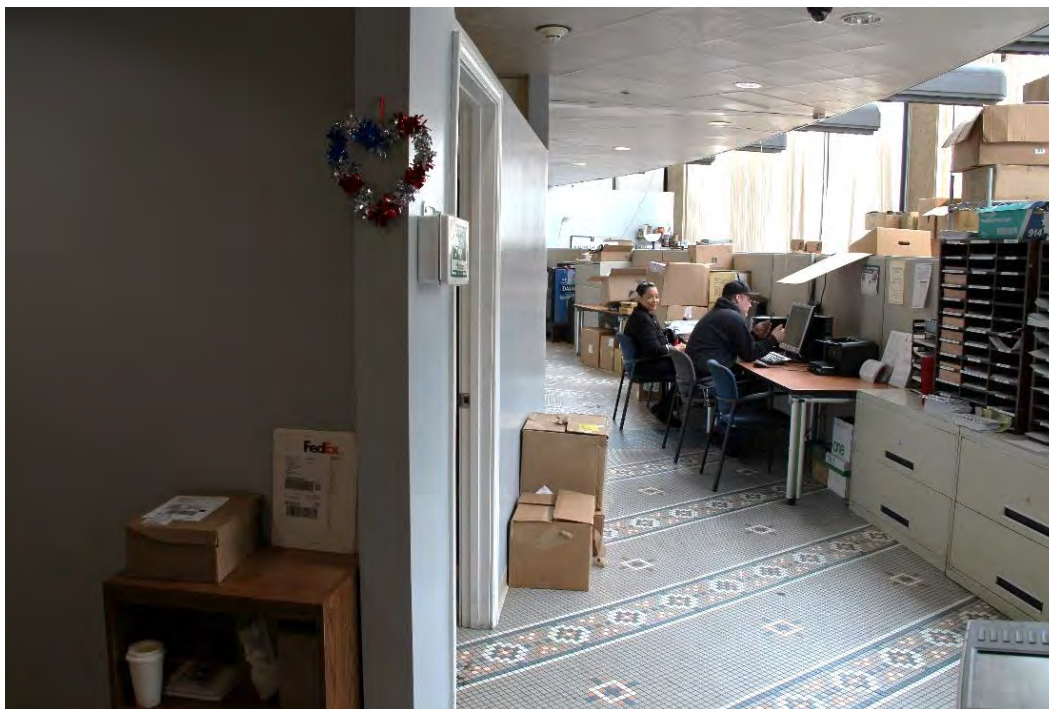
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*Figure 22. Restaurant seating area on south side of the Rotunda that looks out to the airfield. This space was originally occupied by a coffee shop on the concourse level and the Seven Continents Restaurant and lounge was located on the mezzanine level above.*



*Figure 23. Food preparation room on concourse level with tile flooring and white enamel tiles on the walls.*



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*Figure 24. Office space with tile floor on concourse level.*

**(4) Mezzanine level**

The mezzanine level is essentially a large, interior, ring-shaped space located above the concourse level (see Figure 25). The mezzanine does not extend to the outer edge of the Rotunda, leaving multi-story open areas along the perimeter wall and the openness to the building's expansive windows. The outer edge of the mezzanine level is accented with evenly spaced inset square panels, which are now infilled with panels of the same size (see Figure 26 and Figure 27). Several non-original metal beams connect the mezzanine to support columns around the edge of the Rotunda. Public space on this level includes cantilevered walkways that encircle the inner atrium. Walls along the walkway are lined with vertical wood ribbing, some of which is now covered with metal (same as the concourse level), and a low concrete wall finished in terrazzo with a single steel safety rail overlooks the inner atrium.

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Figure 25. View from the mezzanine level showing cantilevered walkways and access stairs from the inner atrium.



Figure 26 and Figure 27. Historic (left, date unknown) and current (right) photographs of the Rotunda. Original inset panels along the outer edge of the mezzanine level are capped (top center in each photo). Historic photograph credit: HB-25500-F, Chicago History Museum, Hedrich-Blessing Collection, © 2019 Chicago Historical Society, all rights reserved.



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A majority of the mezzanine space was originally dedicated to a lounge and the Seven Continents Restaurant, which closed in 1994.<sup>9</sup> The mezzanine space, including the former restaurant, lounge, and retail space, were reconfigured after this time for use as the USO of Illinois, a yoga room, various offices, and a hydroponic garden (see Figure 28 and Figure 29). Public space on the mezzanine is currently dedicated to a hydroponic garden on the south end, a yoga room on the southwest, a mother's room on the northwest, USO of Illinois on the northeast side, and an elevator bay at the north end. Additional offices, a large conference room, and other leased spaces occupy the remaining areas on the mezzanine level, which are divided by removable partition walls. Partition walls extend nearly to the ceiling and three backlit "Rotunda" signs are present. The entire mezzanine level is carpeted.

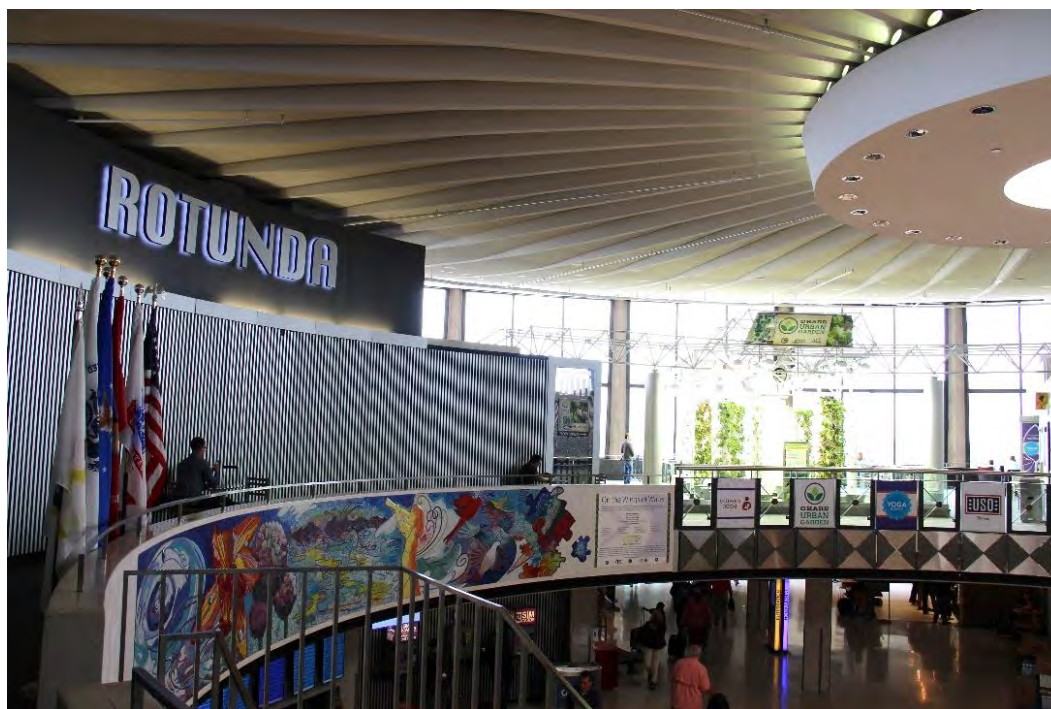
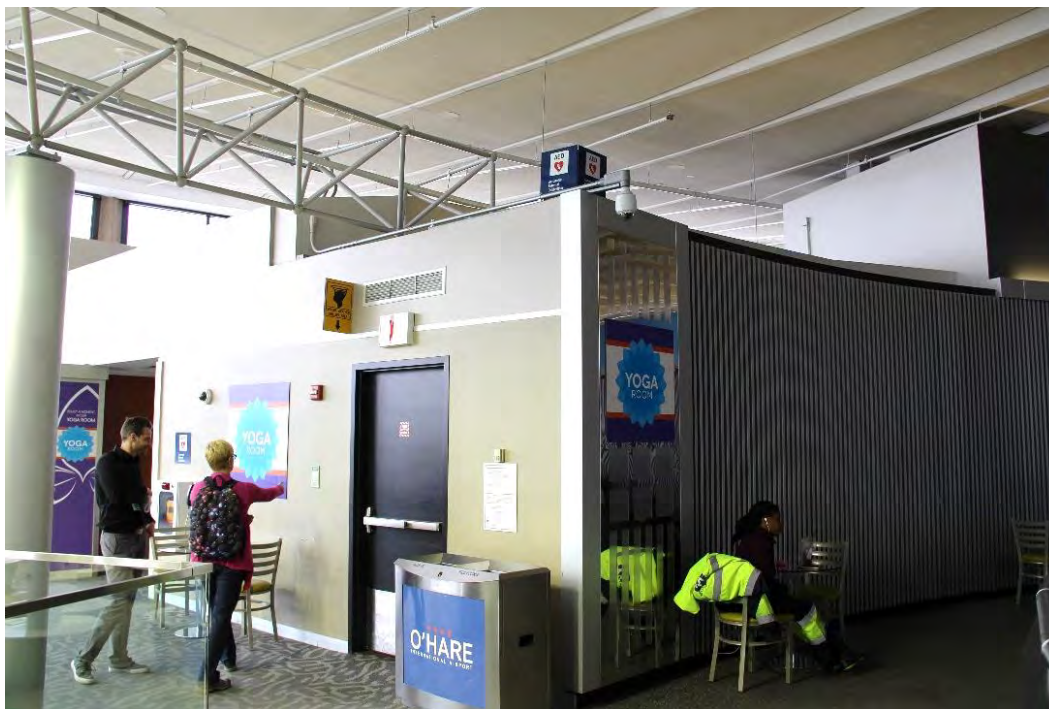


Figure 28. Mezzanine level with hydroponic garden visible in the background.

<sup>9</sup> Eric Zorn, "Perhaps You See Only an Airplane," *Chicago Tribune*, November 27, 1994, sec. 2.

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*Figure 29. Representative view of rooms on the mezzanine level created with non-original removable wall partitions (yoga room).*

#### (5) Apron level

The at-grade apron level has no windows and is currently a multi-purpose space primarily dedicated to storage and offices. A hallway configured in a radial pattern along the perimeter wall features bands of fluorescent lighting inset into the drop ceiling and original white and yellow enamel tiles on walls and support columns (see Figure 30). The hallway provides access to various office spaces, storage rooms, a conference room, and restrooms arranged in a circular pattern between the perimeter hallway and central portion of this level. Three entrances, which also serve as loading docks, provide exterior access to this level and open into interior corridors that lead to the center of the building and are configured perpendicular to the perimeter walls. Several elevator shafts and an internal stairwell are also located on the apron level. The central portion of the apron level is an open circular room used for storing various food and beverage items for restaurants on the concourse level (see Figure 31). Perimeter walls and square support columns in the central portion are clad in original white enamel tiles. Floors are covered with ceramic tile. A rectangular grouping of free-standing walk-in coolers and small storage rooms are located in the circular central space.



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*Figure 30. The interior hallway in the apron level, situated perpendicular to perimeter walls (visible adjacent to door in background), leads from exterior access doors to a central storage area.*



*Figure 31. Representative view of central storage areas of apron level currently used for food and beverage storage.*

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### (6) Basement level

The below-grade basement level consists of an outer hallway arranged in a radial pattern along the perimeter wall. Situated toward the center of the circular level are various storage rooms, mechanical rooms, and three elevator shafts. Florescent lights, conduit, and pipes are suspended from the ceiling. Most wall surfaces and support columns are clad in original white and yellow enamel tiles and floors are covered with synthetic tiles (see Figure 32).

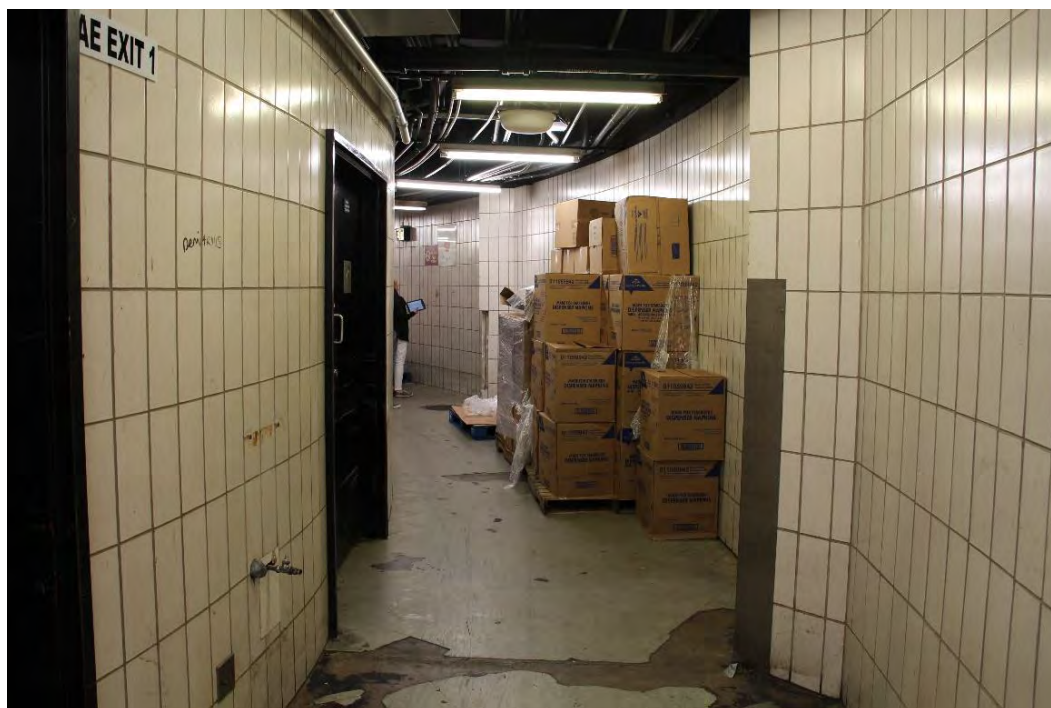


Figure 32. Hallway with original tile located along the perimeter wall of the Rotunda's basement level.

### C. Summary of alterations

Alterations to the Rotunda began in the mid-1990s as airport facilities continued to expand and use of the space evolved. A summary of alterations to the Rotunda is presented below in chronological order.

- 1993-1994 – Seven Continents Restaurant closed. As a result, the kitchen was removed from the mezzanine level and the space was divided up using removable partition walls.
- 1995 – The adjacent FAA Airport Main Traffic Control Tower and three-story FAA office building were constructed and approximately one-third of the glass curtain wall on the north side of the Rotunda was filled in with solid panels.
- Circa 1995 – An original escalator on the west side of the inner atrium was removed. As a result, a portion of the balcony wall where it had intersected was replaced with squared metal panels. Terrazzo flooring in the floor area once occupied by the escalator was replaced with new terrazzo and a decorative terrazzo detail near the center of the floor. Architect or design is unknown.



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- 2001 – Expansion of Concourse G includes slight enlargement of walkway opening between Rotunda and Concourse G at the concourse level.
- 2011 – Hydroponic garden installed on mezzanine level and designed by Parachin Design Studios, Ltd.
- Post-2011 – Addition of “ROTUNDA” signage at atrium mezzanine interior walls.<sup>10</sup>
- 2013 – United Service Organizations, Inc. (USO) of Illinois remodeled on mezzanine level based on plans designed by Ileakis Architects and Planners and Hydro-Thermo-Power Inc. Consulting Engineers
- 2014 – Mother’s room and yoga room installed on the mezzanine level. Architect or designer unknown.
- Unknown date – Changes to the oculus and axial ribs at ceiling, and changes to ceiling lighting.
- Unknown date – Service animal relief area added to Rotunda near link to Terminal 2.
- Unknown date – Employee cafeteria on ground level removed.
- Unknown date – Installation of metal beams that connect mezzanine to structural support columns along the perimeter wall.
- Unknown date – Capping of inset panels at mezzanine.
- Continuous - Modifications to retail/food concessions areas within concourse level.
- Continuous – Replacement of original plate glass windows with safety glass with a slightly different tint. To date approximately 60 percent of the original glass has been replaced.

<sup>10</sup> While the exact date of this modification could not be determined, it was completed post-2011, as it does not appear in as-built photographs following the installation of the garden at the mezzanine level.

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## Section 2

### Statement of Significance

## 2. Statement of Significance

### A. History of the Rotunda

#### (1) Master plan for O'Hare

In the early 1940s, increased traffic at Midway Airport on the south side of Chicago prompted the City to study how to improve Chicago's ability to accommodate the nation's general trend of growing air travel. The City of Chicago (City) determined that Midway Airport was not a candidate for expansion, given the substantial existing residential neighborhoods that surrounded the airport on all sides. The City selected planner and civil engineer Ralph Burke to lead the study on how to grapple with this problem, and in 1944 Burke outlined his findings in the *Report of Commercial Airport Requirements for Chicago*. This report identified the existing Douglas manufacturing plant and associated airfield northwest of downtown Chicago as a potential site to develop as the City's second commercial airport, which eventually became the site of O'Hare (see Figure 33).<sup>11</sup> Burke believed the future of Chicago as a world-class city depended on a well-planned strategy to secure the City's position as a travel center, as air travel was envisioned as taking over rail travel—a mode of transportation for which Chicago had been the nation's leading center since the early twentieth century.<sup>12</sup>

Burke quickly drafted plans to develop O'Hare into a major international airport that could support the increasing demand at Midway and in the region and allow Chicago to remain a central city for transportation. O'Hare's first master plan in 1948 envisioned a "tangential scheme" design with multiple "split-finger" terminals extending from a central grand concourse.<sup>13</sup> This plan devised several runways radiating from the terminal building at incremental angles like a pinwheel, with a single roadway leading to parking areas fronting the central concourse (see Figure 34).<sup>14</sup> Burke's plan took a few years to materialize and his complete design was never fully constructed. By the time of his death in 1956 only one terminal (the original Terminal 1) had been completed, which was designed by Bill Priestley of Skidmore, Owings and Merrill.<sup>15</sup>

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<sup>11</sup> David Brodherson, "All Airplanes Lead to Chicago: Airport Planning and Design in a Midwest Metropolis," in *Chicago Architecture and Design 1923-1993: Reconfiguration of an American Metropolis* (Chicago and Munich: The Art Institute of Chicago and Perstel-Verlog, 1993), 75.

<sup>12</sup> Brodherson, "All Airplanes Lead to Chicago: Airport Planning and Design in a Midwest Metropolis," 75.

<sup>13</sup> Franz Schulze, *Oral History of Carty Manny* (Chicago: Art Institute of Chicago, 1995), 184.

<sup>14</sup> Schulze, *Oral History of Carty Manny*, 184.

<sup>15</sup> Schulze, *Oral History of Carty Manny*, 181; Brodherson, "All Airplanes Lead to Chicago: Airport Planning and Design in a Midwest Metropolis," 262.

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Figure 33. Overview of the locations and relative size of Midway Airport (Chicago Municipal Airport) and the proposed O'Hare (Orchard Place/Douglas Field) facilities in relation to the city of Chicago, 1948.<sup>16</sup>

<sup>16</sup> Ralph H. Burke, *Master Plan of Chicago Orchard (Douglas) Airport* (Prepared for the City of Chicago, January 1948), 21, available in Transportation Library Digital Collections: Chicago O'Hare International Airport, <https://archive.org/details/masterplanofchic00burk>, Northwestern University Transportation Library.



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*Figure 34. 1948 drawing of Ralph Burke's proposed design for O'Hare featuring a central roadway approaching the grand concourse with split-finger terminals extending into the airfield. Note that Burke's terminology contrasts with modern airport terminology, in which the central structures are referred to as terminals leading to the concourses where aircraft arrive.<sup>17</sup>*

Following the construction of the first terminal, the new commercial jet aircraft revealed the shortcomings of Burke's initial plan. The Boeing 707 and Douglas DC-8 not only carried twice as many passengers as earlier commercial aircraft but required longer runways and more space at the terminal gates to accommodate wider wingspans. The deliveries of these new jet-engine-powered aircraft to the main airliners was set to begin in 1958 and increase in 1959, which put pressure on Chicago to hasten the planning process and to ensure these aircraft could be accommodated through upgrades at O'Hare.<sup>18</sup>

There were a few additional issues with Burke's plan. The radiating runway design of Burke's "tangential scheme" presented risk related to potential aircraft collisions, due to the convergence of multiple runways.<sup>19</sup> Burke's plan had also underestimated the role of the automobile in air travel. By 1960 a new

<sup>17</sup> Burke, *Master Plan of Chicago Orchard (Douglas) Airport*, 22.

<sup>18</sup> Naess & Murphy, Landrum & Brown, and James P. O'Donnell, *Chicago O'Hare International Airport Engineering Report: First Stage Development Program* (Prepared for the City of Chicago, 1958), 3, Available in Transportation Library Digital Collection: Chicago O'Hare International Airport <https://archive.org/details/chicagooohareinte00odon>, Northwestern University Transportation Library.

<sup>19</sup> Schulze, *Oral History of Carty Manny*, 188.

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highway was completed between the Chicago Loop and O'Hare with space in the median for a future commuter train line.

In 1955 Mayor Richard Daley commissioned the architectural firm Naess & Murphy to review Burke's original plan and build upon it with larger terminals and greater automobile access.<sup>20</sup> The design and planning team partnered with the Cincinnati-based airport consulting firm Landrum & Brown to complete the new airport design, and to work with existing airlines at O'Hare to accommodate individual needs, and assess the airline's statistics for anticipated future air traffic. In assisting with the design, Landrum & Brown focused on the concepts of "concentration, consolidation, and connections."<sup>21</sup> By this time, the expansion of O'Hare had become the largest public project in the history of Chicago.<sup>22</sup>

Naess & Murphy selected Stanislaw Z. Gladych as its chief designer for the O'Hare project alongside Carter Manny, Jr.<sup>23</sup> Gladych left another firm, SOM, to join Naess & Murphy in the design of the new O'Hare terminals.<sup>24</sup> Gladych encouraged several other employees from SOM to join him at Naess & Murphy to work on the design. Gertrude Lempp Kerbis, the designer of the Rotunda, was one of several colleagues to make the transition to Naess & Murphy, and at the time of her hiring in 1959, she was the only woman designer on staff.<sup>25</sup>

By 1958 Naess & Murphy had redesigned Burke's 1948 plan to eliminate the grand, single terminal building for a more favorable, widened U-shape terminal arrangement. This plan was selected for reasons of economy and efficiency, including the assurance that this U-shape design would allow for "more maneuvering and parking room for planes" and would enhance ground transportation around the terminals for efficient curbside passenger loading and unloading in the growing automobile age.<sup>26</sup> Naess & Murphy's design incorporated a bi-level roadway fronting the three terminals, allowing passengers to enter and exit the airport on separate levels. Additionally, this plan could better accommodate any potential future airport expansion projects than Burke's single terminal design. Under Naess & Murphy's plan, two additional terminals were proposed to operate alongside the original terminal building, which was to undergo some alterations to serve as O'Hare's new international terminal. This scheme maintained some of Burke's "split-finger" Y-shaped concourses, and alternated with simpler, linear concourses (see Figure 35). In this plan, the original Terminal 1 building would remain, connected to the new terminals, and was to become O'Hare's new international terminal.

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<sup>20</sup> "Stanislaw Z. Gladych Dies; Designed O'Hare Terminals," *Chicago Tribune*, January 4, 1982.

<sup>21</sup> American Institute of Architects et al., *AIA Guide to Chicago* (San Diego, New York and London: Harcourt Brace, 1993), 262.

<sup>22</sup> American Institute of Architects et al., *AIA Guide to Chicago*, 275.

<sup>23</sup> "Stanislaw Z. Gladych Dies; Designed O'Hare Terminals."

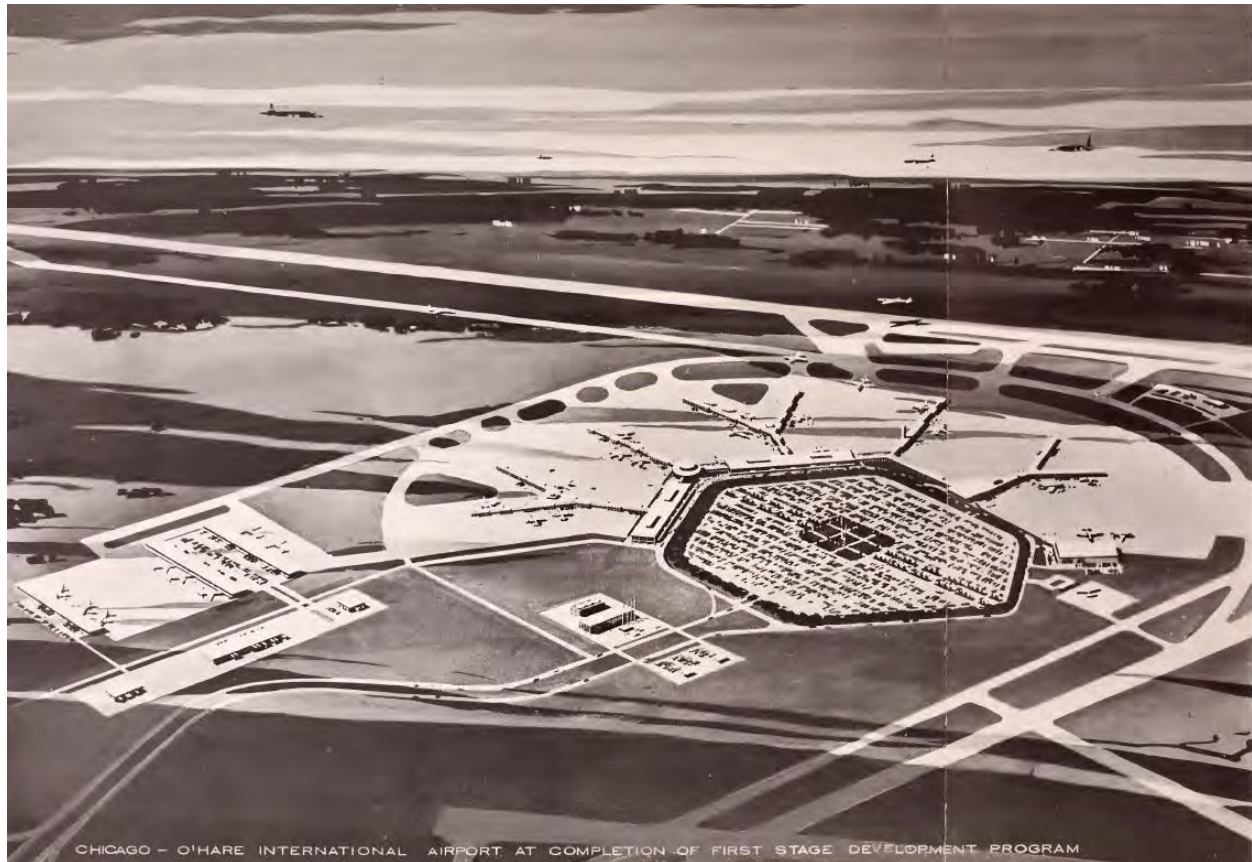
<sup>24</sup> Betty J. Blum, *Oral History of Gertrude Kerbis* (Chicago: Art Institute of Chicago, 1997), 94.

<sup>25</sup> Blum, *Oral History of Gertrude Kerbis*, 95.

<sup>26</sup> Thomis, Wayne, "Newest O'Hare Plan Results in More Room," *Chicago Daily Tribune*, March 5, 1958, sec. 1.

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*Figure 35. Image of the proposed new terminal buildings (and the existing original Terminal 1) and plan for O'Hare based on the 1958 master plan.<sup>27</sup>*

Landrum & Brown encouraged the extensive implementation of concession spaces and focused on a centralized location for principal concessions. This concept developed into the proposal for two, multi-story, circular buildings to be located between the terminals that would house a restaurant and other concessions.<sup>28</sup> The proposal to design a circular building between the western new terminal and the existing terminal building was abandoned, and the Rotunda was the only building of this kind retained in the final design (see Figure 36).

<sup>27</sup> Naess & Murphy, Landrum & Brown, and O'Donnell, *Chicago O'Hare International Airport Engineering Report: First Stage Development Program*, 9.

<sup>28</sup> Schulze, *Oral History of Carty Manny*, 228.



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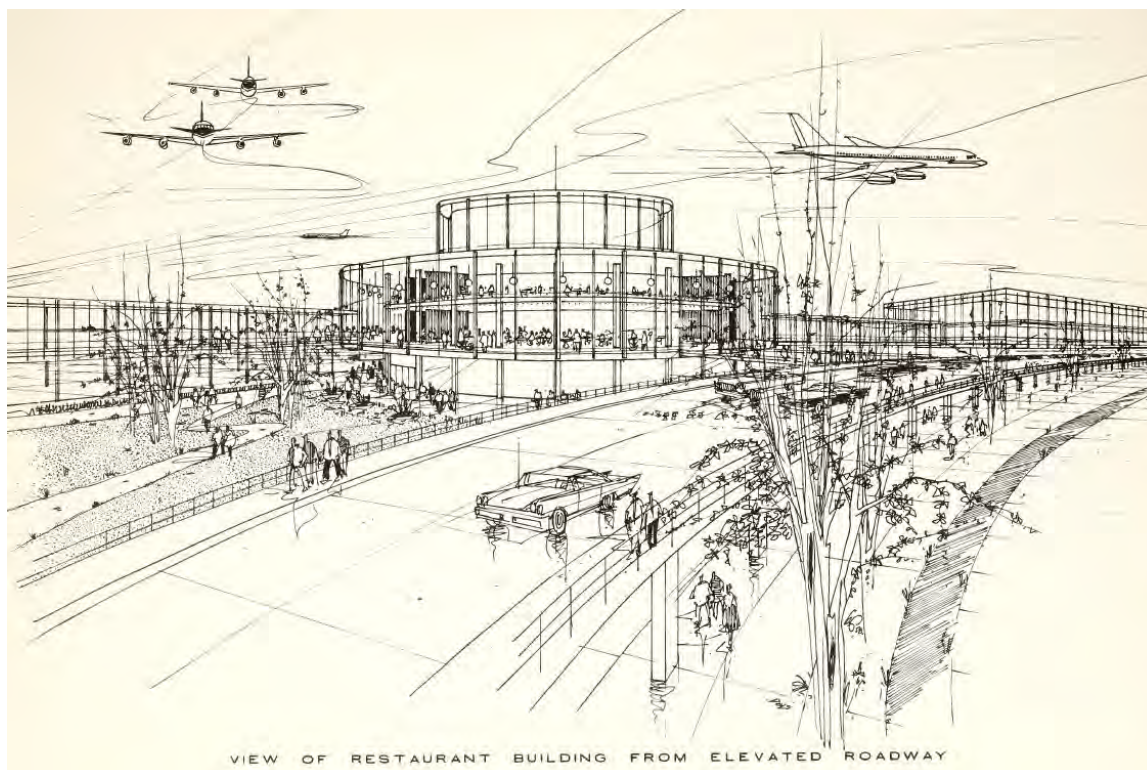


Figure 36. 1958 sketch of the proposed restaurant building, published in the First Stage Development Program engineering report for O'Hare.<sup>29</sup>

While some of the specifications carried into the final design, other details were changed from the concept design, including the composition of the roof structure and interior ceiling materials, the building's overall height, and the circulation of terminal-to-terminal pedestrians through the Rotunda.<sup>30</sup> Detailed planning for the design of the Rotunda was delayed in relation to the terminals and associated concourses, as it was not considered to be as critical of a component to the master plan.<sup>31</sup>

#### (2) Design of the Rotunda

Kerbis was brought onto Naess & Murphy's O'Hare design team in 1959 and was assigned the design for the restaurant building. Both Kerbis and Manny allude to the fact that Kerbis was selected for this role given her recent experience with Mitchell Hall dining and kitchen building at the United States Air Force Academy in Colorado Springs, Colorado.<sup>32</sup> Working with a kitchen consultant, Kerbis developed the final organization of the interior spaces, as well as the detailed material selection for the interior and exterior, and the main structural components.

<sup>29</sup> Naess & Murphy, Landrum & Brown, and O'Donnell, *Chicago O'Hare International Airport Engineering Report: First Stage Development Program*, 37.

<sup>30</sup> Early sketches from 1958 showed the building having four stories above grade: an apron level, a concourse level, a second level, and a smaller-diameter pop-up third level. Naess & Murphy, Landrum & Brown, and O'Donnell, *Chicago O'Hare International Airport Engineering Report: First Stage Development Program*, 35.

<sup>31</sup> Schulze, *Oral History of Carty Manny*, 228.

<sup>32</sup> Michael Branigan, *A History of Chicago's O'Hare Airport* (Charleston, S.C.: The History Press, 2011), 89.



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Kerbis's design was heavily influenced by the "jet age," which ushered in an era of enthusiasm for air travel as the new-jet engine-powered aircraft stirred excitement in the travelling public. She designed the Rotunda with a column-free interior space and large windows at the concourse and mezzanine levels to facilitate views toward the airfield.<sup>33</sup> Kerbis envisioned a large central atrium in the Rotunda to break up the monotonous proportions of circulation widths, ceiling heights, and other constant elements throughout the terminals and concourses.<sup>34</sup> The atrium was designed to be a transition space where three circulation corridors would meet: two from each flanking terminal and one from the roadway.<sup>35</sup>

Kerbis worked with structural engineer Sherwin Asrow to design the roof, and selected the cable-suspended inverted dome system for two reasons: 1) to avoid any interior columns to inhibit sightlines toward the windows for views onto the airfield; and 2) to ensure that the roof did not encumber the airspace.<sup>36</sup> This roof system of tension and compression was designed in a nearly identical manner as that at the Cilindro Municipal in Montevideo, Uruguay, (1956) and the La Villita Assembly Building in San Antonio, Texas, (1959) that preceded it, and was also constructed utilizing the same methods and materials. In the case of the Rotunda, the 190-foot diameter was designed to be spanned with 52 two-inch cables anchored to a concrete outer ring 12 feet apart and secured to an inner steel ring suspended above the center of the building.<sup>37</sup> This radial cable structure allowed for precast concrete panels to be suspended on each cable to create the concrete roof (see Figure 37 and Figure 38). Once installed, the roof was weighted to create a structural "moment," which would shape the roof into an inverted dome with tension. The weighted roof created spacing between each concrete panel, which was then grouted. Once the weights were removed, the cables would naturally tend to recoil to their original state with compression but would be inhibited by the now-grouted concrete panels. The inverted dome shape was given a convex center to facilitate water to be channeled toward drains.

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<sup>33</sup> Blum, *Oral History of Gertrude Kerbis*, 102.

<sup>34</sup> Blum, *Oral History of Gertrude Kerbis*, 100.

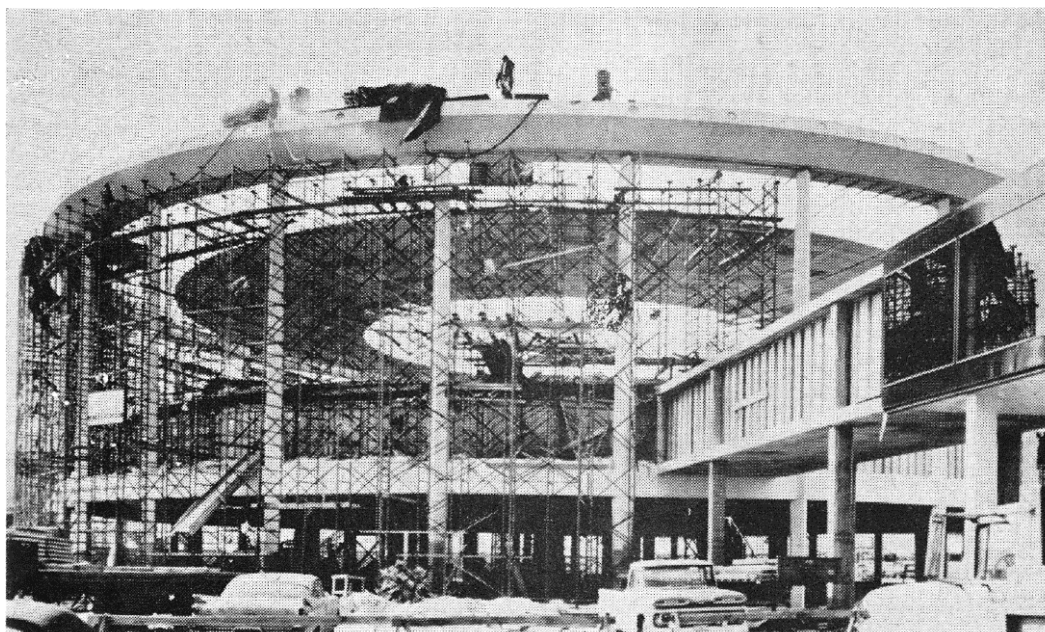
<sup>35</sup> Blum, *Oral History of Gertrude Kerbis*, 100.

<sup>36</sup> Blum, *Oral History of Gertrude Kerbis*, 105; Schulze, *Oral History of Carty Manny*, 228.

<sup>37</sup> "Restaurant Building, O'Hare International Airport, Chicago," *Architecture and Engineering News* 4 (June 1962): 66.

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*Figure 37. Photograph of the Rotunda under construction in 1962.<sup>38</sup>*



*Figure 38. Photograph of the cable-suspended roof under construction in 1962.<sup>39</sup>*

<sup>38</sup> "Restaurant Building, O'Hare International Airport, Chicago," 67.

<sup>39</sup> "Restaurant Building, O'Hare International Airport, Chicago," 67.

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Given the potential for jet engine noise to infiltrate the dining area, the curtain wall glass was devised to be approximately one inch thick to dampen the vibrations from the noise of the jet engines.<sup>40</sup> To lessen the glare and heat reflection, the glass was designed to be gray heat-absorbing glass, although Kerbis had originally designed a sun curtain system to mitigate this issue.<sup>41</sup> This system was to accommodate floor-to-ceiling curtains at the concourse to second level windows that would shift across the circular perimeter walls with the movement of the sun. However, the interior design team responsible for restaurant finishes removed the sun curtain from the plans and instead implemented a simpler electronic-controlled vertical curtain.<sup>42</sup>

### (3) Construction and opening

Malan Construction won the bid to serve as the major contractor on the Rotunda construction. The contract between the City and Malan Construction stipulated that the construction of the Rotunda would be completed in 255 days, with a penalty of \$1,500 for each day beyond that deadline, and a bonus of \$1,500 for each day prior to the deadline if the construction could be completed early.<sup>43</sup> The financing for the construction of the building was subsidized by Carson Pirie Scott & Co., a Chicago department store that had been awarded the contract to operate the concessions within the Rotunda.<sup>44</sup> Carson Pirie Scott & Co. paid 51.14 percent of the total \$4,599,432 related to the complete construction and finishing costs of the building, an agreement that also required the tenant to sign a 20-year lease for all restaurants in the space.<sup>45</sup>

On March 25, 1963, the Rotunda opened to patrons, 14 months after Terminal 2 and Terminal 3 opened to passengers (see Figure 39).<sup>46</sup> The basement and apron level housed an employee cafeteria—which had been opened since September 1962—and housekeeping facilities, as well as spaces for airport medical and police operations.<sup>47</sup> The 156-seat employee cafeteria was also available for use by the public, serving breakfast, lunch, and dinner to all patrons until early 1963.<sup>48</sup> The concourse level consisted of the Tartan Tray cafeteria, a coffee shop, and a pancake house, while the mezzanine level housed the flagship restaurant—the Seven Continents—and a cocktail lounge called the 42<sup>nd</sup> Parallel. Upon opening, the Rotunda was often called the Seven Continents Building in reference to the flagship restaurant that operated out of its mezzanine level.

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<sup>40</sup> Susan F. King, *Interview with Gertrude Kerbis* (Chicago: Art Institute of Chicago, 2007), 23.; While this source claims that the glass was designed to be an inch thick, another source claims that it was 3/8" thick. "Restaurant Building, O'Hare International Airport, Chicago."

<sup>41</sup> Blum, *Oral History of Gertrude Kerbis*, 102.

<sup>42</sup> Eleanor Page, "At Creche Benefit Dinner: Guests Will Walk in Circles," *Chicago Tribune*, March 19, 1963.

<sup>43</sup> "\$2,899,000 Is Bid for Erecting Cafe at O'Hare," *Chicago Tribune*, January 31, 1962, sec. 1.

<sup>44</sup> "Check for O'Hare Restaurant," *Chicago Tribune*, February 24, 1962.

<sup>45</sup> Carson Pirie Scott & Co. had already taken over the lease for the restaurant at the International Terminal building from Marshall Field, who decided to not renew their lease, and passed on their rights to first choice in operating the concessions within the Rotunda. ("Aldermen O.K. Carsons Cafe Site at O'Hare," *Chicago Tribune*, May 11, 1962, sec. 2.)

<sup>46</sup> City of Chicago, Department of Aviation, *Annual Report 1963*, December 31, 1963, Available in Transportation Library Digital Collection: Chicago O'Hare International Airport, Northwestern University Transportation Library, <https://archive.org/details/annualreport1963chic>.

<sup>47</sup> Branigan, *A History of Chicago's O'Hare Airport*, 86–88.

<sup>48</sup> "O'Hare to Open New Cafeteria for Employees," *Chicago Tribune*, September 17, 1962.

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*Figure 39. Photograph of the atrium at the Rotunda following completion in 1963. Historic photograph credit: HB-29048, Chicago History Museum, Hedrich-Blessing Collection, © 2019 Chicago Historical Society, all rights reserved.*

The interior finishes and kitchen build-outs were financed by Carson Pirie Scott & Co. Most of the interior walls in the public areas were clad in teak with tapestries. The 42<sup>nd</sup> Parallel lounge was covered in pigskin, with walls of malaga onyx and Austrian travertine marble and Danish-style chairs designed by Hans Wegner.<sup>49</sup> In addition to its general dining room, the Seven Continents restaurant opened with five VIP rooms for private parties, which sported yellow handwoven draperies from Mexico and Swedish-style chairs designed by Arne Jacobsen.<sup>50</sup> These rooms were able to be closed or left open depending on the size of the party.<sup>51</sup>

The Rotunda's opening coincided with the commemoration ceremony for the new O'Hare terminal buildings, which by that time had already been operating for 14 months. The ceremony was attended by all of the designers on the project, Chicago civic and business leaders, as well as Mayor Richard J. Daley and President John F. Kennedy. The grand opening was celebrated with 240 dinner plates consisting of Mexican gulf shrimp and baked Antarctica (better known as Baked Alaska but the name was changed to give it a more

<sup>49</sup> Page, "At Creche Benefit Dinner."

<sup>50</sup> Page, "At Creche Benefit Dinner."

<sup>51</sup> McCormick, Sally, "Gracious Dining in the Continental Manner: Seven Continents Chicago-O'Hare International Airport," *Chicago Tribune*, August 25, 1966.



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international flair to correspond with the character of the Seven Continents restaurant), with tournedos, salad, and “rare liquors.”<sup>52</sup> Reaction to the design of the Rotunda was positive, heralding the building’s “dramatic elegance” and its offer of a “spectacular sweeping view on all sides.”<sup>53</sup> In 1965 the “Seven Continents Building” won the Honor Award from the American Institute of Architects Chicago chapter.

The Seven Continents was prepared for punctual service, and to prepare and serve meals to patrons who may be dining during a short layover. Additional entrees would also be available for those with a more leisurely timeframe, which would be cooked to order.<sup>54</sup> The international flair of the Seven Continents restaurant was implemented throughout several aspects of the operation. Qualified servers were required to be bilingual, and upon opening, two dozen had been hired from France, Switzerland, and Germany.<sup>55</sup> Exotic ingredients to fill the menu’s cultural spectrum were flown into O’Hare daily.<sup>56</sup>

In 1964 a new covered walkway was constructed between the roadway and the concourse level of the Rotunda.<sup>57</sup> Rather than driving directly up to the covered walkway, patrons seeking to eat at the Seven Continents restaurant, who were not travelling, would need to drive to a valet stand to pick up a valet driver, who would then drop the patrons off at the covered walkway. This walkway was demolished at some point between 1974 and 1981.<sup>58</sup>

The Seven Continents restaurant remained in operation until 1993 or 1994.<sup>59</sup> Various alterations have changed the interior spatial arrangement of the building, as well as many interior finishes. While the atrium space remains intact, material changes such as terrazzo floor replacement and use of metal ribbing to clad over wood ribbing along rounded interior walls have introduced contemporary elements to the space. Additionally, the central escalator to the mezzanine was removed and contemporary signage was erected that reads “ROTUNDA” on three sides of the atrium at the mezzanine level. Interior finishes changed in tandem with progressive changes to concession spaces, altering the original arrangement and interior design elements that were associated with the theme and use of each restaurant space at its opening in 1963. Additionally, some of the original viewsheds toward the airfield to the south have been altered by the 2001 enlargement of Concourse G. Viewsheds to the north have also been changed over time with the infill of north-facing windows coinciding with the 1995 construction of the adjacent FAA building. Today, the concourse level of the Rotunda retains many of the original functions of the building, including a restaurant, food court and concession spaces. The mezzanine level has experienced more

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<sup>52</sup> “Feast to Open New O’Hare Luxury Cafe,” *Chicago Tribune*, March 23, 1963.

<sup>53</sup> McCormick, Sally, “Gracious Dining in the Continental Manner”; Kate Loring, “Dining at Seven Continents Is Exciting - and Expensive,” *Chicago Tribune*, April 25, 1965.

<sup>54</sup> McCormick, Sally, “Gracious Dining in the Continental Manner.”

<sup>55</sup> “Feast to Open New O’Hare Luxury Cafe.”

<sup>56</sup> “Feast to Open New O’Hare Luxury Cafe.”

<sup>57</sup> City of Chicago, Department of Aviation, *Annual Report 1964*, 1964, Available in Transportation Library Digital Collection: Chicago O’Hare International Airport, Northwestern University Transportation Library, <https://archive.org/details/annualrepor1964chic>.

<sup>58</sup> The covered walkway between the Rotunda and the roadway is visible in a 1974 aerial photograph, but does not appear in a 1981 aerial photograph, suggesting it was demolished at some point in the intervening years.

<sup>59</sup> An exact date of closure for the Seven Continents Restaurant could not be determined, but likely occurred between October 1993 and November 1993, according to newspaper articles from those periods. “You Can’t Earn Frequent Flyer Miles Eating at Home,” *Chicago Tribune*, October 29, 1993, sec. 7; Zorn, “Perhaps You See Only an Airplane.”

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changes to function, including the subdivision and conversion of the large open dining space into administration offices and other ancillary functions.

#### B. Airport design

The design of airport terminals has evolved over time as the function of the terminal itself has changed. However, one concept that has continued through time is the incorporation of spectator-based spaces into airport design. Viewing spaces have been integrated in various forms, from open-air observation decks to elaborate restaurants with unobstructed views toward the airfield. The following section discusses the development and evolution of airport terminal buildings as a property type, with a focus on influences that spectatorship had on airport layout and design. This historic context provides the background within which to understand how the design of O'Hare's expansion based on the 1958 master plan was a shift from the minimal terminals of the propeller aircraft age to larger terminals of the jet age, a period defined by the introduction of jet-engine-powered aircraft into commercial transportation in the late 1950s.

Early terminals were essentially a sheltered waiting area for passengers, and as they became more sophisticated, designers considered the spatial needs inherent in moving people through a building that acted as a bridge between air and ground transportation. In the post-World War II (postwar) period terminals began to sprawl, offering new retail and entertainment amenities and spawning purpose-specific wings (the boarding pier, later the concourse) to provide access to boarding gates. Airport planners responded to changes to air travel during the jet age with the design of multiple, distinct concourses linked by different types of circulation, ranging from corridors to tunnels to tramway systems. Expanded terminals and concourses accommodated the increase in passenger travel associated with the introduction of larger jet-engine-powered aircraft such as the Boeing 707 and McDonnell Douglas DC-8. During this period, design of airport restaurants and other viewing spaces evolved to accommodate the public's renewed interest in air travel and enthusiasm for the new jet-engine aircraft.

##### (1) Pre-World War II beginnings

Public interest in air travel began in the earliest days of aircraft development, and airfields have incorporated the viewing experience into their designs since the earliest period of air travel of the early twentieth century. The Reims Air Meet in 1909 in Reims, France, drew 500,000 spectators over the one-week show, precipitating the construction of an aerodrome that accommodated a 600-seat restaurant overlooking the airfield. Aircraft prior to World War I were designed for military use, and similarly, airfields from this period had been designed to accommodate this predominantly utilitarian function, or were designed as sporting venues similar to horse racing tracks, where spectators could watch air contests and demonstrations.<sup>60</sup>

The period between World War I and World War II saw the birth of both commercial passenger aviation and the airport terminal as a distinct architectural property type.<sup>61</sup> World War I served as a substantial impetus for the rapid advances in both aircraft and airfield development, and at the war's conclusion

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<sup>60</sup> Alastair Gordon, *Naked Airport: A Cultural History of the World's Most Revolutionary Structure* (Henry Holt and Company, 2014), 10–13.

<sup>61</sup> Hugh Pearman, *Airports: A Century of Architecture* (London: Laurence King Publishing, 2004), 42; Gordon, *Naked Airport*, 10–13.

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Europe's aviation infrastructure was far more developed than that of the United States.<sup>62</sup> The 1910s and 1920s saw the conversion of European military airfields for civilian use, and through much of the interwar period Europe dominated the forefront of airport design and development.<sup>63</sup> Major interwar examples included Paris's Le Bourget, Berlin's Tempelhof, and the Hendon, Croydon, and Hounslow airports outside London.<sup>64</sup>

Early terminal building designs at these airports varied widely; aesthetically, many employed architectural styles popular at the time, while others were designed to evoke existing, familiar architecture precedents. In Berlin, construction of the first terminal at Tempelhof in 1926 incorporated the traveler experience and social interest in viewing aircraft movements into its composition and orientation (see Figure 40). Tempelhof made landmark achievements and several firsts in airport design, and incorporated an open-air 3,000-seat restaurant and observation deck at the roof to provide travelers with view toward the airfield to enjoy the novelty of watching flight.<sup>65</sup> Completed in 1929, the Schiphol Terminal in Amsterdam had similar open-air roof cafes designed for spectators.<sup>66</sup>



Figure 40. Photograph of the 1926 Tempelhof terminal building, shown in 1928.<sup>67</sup>

<sup>62</sup> Pearman, *Airports*, 41.

<sup>63</sup> Gordon, *Naked Airport*, 10–13.

<sup>64</sup> Pearman, *Airports*, 42.

<sup>65</sup> Pearman, *Airports*, 53.

<sup>66</sup> Pearman, *Airports*, 62.

<sup>67</sup> SPIEGEL ONLINE, "Fotostrecke - Bild 2 - Abschied von Tempelhof," *SPIEGEL ONLINE*, October 29, 2008, <https://www.spiegel.de/fotostrecke/abschied-von-tempelhof-fotostrecke-107840-2.html>.

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In 1928 Lieutenant Colonel Stedman S. Hanks of the United States Air Corps Reserve traveled through Europe and reported on his findings on airport design. Hanks was especially interested by the airport restaurants, with a section of his report describing the ideal design: "Comfortable reception rooms, a roof-garden commanding a wide view over the whole aviation field, and spacious terraces with chairs and tables in the lawns invite the visitor to stay."<sup>68</sup>

The common form for airports that emerged by the mid-1930s was not too dissimilar to the European model established at Tempelhof; municipal airports typically consisted of a low, wide building with a central control tower and windows along the airside elevation.<sup>69</sup> Increased air travel and aircraft technological advancements continued to draw spectators to airports and entertained enthused travelers. In turn, airports constructed during this period continued to incorporate the glamorous aspects of air travel, providing areas to accommodate traveler curiosity and excitement through observation decks and restaurants that provided direct views toward the airfield. One example was the airport terminal in Dublin, Ireland, constructed in 1937-41, which incorporated large cantilevered viewing platforms at either end of the building.<sup>70</sup>

In the United States, the Union Air Terminal (now Hollywood Burbank Airport) in Burbank, California opened a restaurant in 1940 called the Sky Room (see Figure 41). This restaurant had large windows overlooking the airfield and had a white table-cloth dining experience.

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<sup>68</sup> Pearman, *Airports*, 54.

<sup>69</sup> John Zukowsky and Koos Bosma, *Building for Air Travel: Architecture and Design for Commercial Aviation* (Chicago: Art Institute of Chicago, 1996), 73-74, 79; Gordon, *Naked Airport*, 101-3; Pearman, *Airports*, 57.

<sup>70</sup> Pearman, *Airports*, 58.



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Figure 41. Interior of the Sky Room restaurant within the Union Air Terminal (now Hollywood Burbank Airport) in Burbank, California.<sup>71</sup>

#### (2) Postwar and the jet age

Major airports constructed immediately following World War II incorporated open-air observation decks into their designs, including Friendship International Airport (now Baltimore/Washington International Airport) in 1950, and the Central Terminal at San Francisco International Airport in 1954. There was also one at the International Arrivals Building at Idlewild Airport (now JFK) in New York, completed in 1957, which was the largest airport observation deck in the United States at the time. Upon opening, the Central Terminal of the San Francisco International Airport also included the International Room restaurant, which had a prominent view of the airfield designed for patrons to view the airfield activity (see Figure 42).<sup>72</sup>

<sup>71</sup> Frashers Inc., *Sky Room, Union Air Terminal, Burbank, California*, Photograph, ca 1940, California State Library.

<sup>72</sup> "Airport Gains in First 6 Mos.," *San Mateo Times*, August 25, 1954, San Mateo Times International Airport Souvenir edition.

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Figure 42. 1962 photograph of the International Room restaurant at San Francisco International Airport. Photograph credit: 2011.032.0756, "negative: San Francisco International Airport (SFO), International Room restaurant, 1962," Collection of SFO Museum.

Commercial jets were first introduced in the U.S. in 1959 and rapidly altered the parameters of airport design.<sup>73</sup> In one respect, the early jet age incited enthusiasm in the general public regarding air travel and the new jet-engine-powered passenger aircraft. This phenomenon of going to an airport, not to travel but to view the aircraft, influenced airport design of the late 1950s and 1960s. Catering to these desires were airport designs that incorporated large windows, dining rooms that overlooked the airfield, and other amenities such as airport sightseeing tours.<sup>74</sup> Many of the restaurant spaces also offered several dining options in a single space, such as the TWA Terminal at Idlewild Airport that served patrons at the Constellation Club, Lisbon Lounge, and the Paris Café, as well as a coffee shop—multiple options for varied dining experiences under one roof.

Following the introduction of jet-engine aircraft to air travel, noise and vibrations became an issue for spectator-focused areas of the airport, as these new aircraft were substantially louder than propeller aircraft. Designs began to shift away from open-air restaurants and observation decks to closed spaces that incorporated thick glass for noise dampening, to make the airfield viewing experience more comfortable.<sup>75</sup> Designs also began to show distinction from the terminal buildings with which they were associated in terms of form, massing, and material use, rather than being incorporated into the terminal buildings. The restaurant within the Theme Building at the Los Angeles International Airport (LAX),

<sup>73</sup> Janet R. Bednarek, *Airports, Cities, and the Jet Age: US Airports Since 1945* (N.p.: Palgrave Macmillan, 2016), 130.

<sup>74</sup> Zukowsky and Bosma, *Building for Air Travel*, 15.

<sup>75</sup> King, *Interview with Gertrude Kerbis*, 23.

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designed by Pereira & Luckman and completed in 1961, was designed to be a “glassed eating facility” serving as an “observation deck with 360-deg. view of the \$50 million jet-age airport.” The round building’s striking Space Age form was in stark contrast to the simpler, rectilinear designs of the LAX terminal buildings (see Figure 43).<sup>76</sup> Unusually, the restaurant in the Theme Building was not expected to be used by the LAX air travel passengers, but by citizens of Los Angeles.<sup>77</sup> This intent was shared among planners for the Rotunda, which was also intended for use by travelers and non-travelers alike. The Rotunda at O'Hare was also a round building with design elements that stood out from the adjacent Miesian terminal buildings. Constructed in 1963, the Rotunda incorporated jet age-influenced design elements, such as sweeping views of the airfield with thick, noise and vibration-damping glass.



Figure 43. 1961 photograph of the Theme Building (left) at Los Angeles International Airport.<sup>78</sup>

By the 1970s the novelty of the jet age had diminished, and with it the incorporation of new airfield-oriented restaurants dwindled, as noted by historian Jan Whitaker.<sup>79</sup> While restaurants and other concessions continued to be incorporated as a necessity for travelers, interest in the airport restaurant experience waned and thus lost economic favorability by potential concession operators.

<sup>76</sup> “10-Ton Airport Theme Structure Arch Set Up,” *Los Angeles Times*, December 13, 1960, sec. 1.

<sup>77</sup> “10-Ton Airport Theme Structure Arch Set Up.”

<sup>78</sup> Foster and Kleiser; Hereford, Peggy G., *View of a 707 Continental Airlines Jetliner with the Los Angeles International Airport behind It*, September 29, 1961, Photograph, September 29, 1961, University of Southern California Digital Library and California Historical Society, <http://digitalibrary.usc.edu/cdm/singleitem/collection/p15799coll65/id/12358/rec/8>.

<sup>79</sup> Aarian Marshall, “When People Looked Forward to Eating Airport Food,” *City Lab Design*, November 26, 2014, <https://www.citylab.com/transportation/2014/11/when-people-looked-forward-to-eating-airport-food/383203/>.

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#### C. Cable-supported roofs

The following history and background information on cable-supported roof systems provides a context with which to understand the roof form of the Rotunda. Cable-supported structures date as far back to early cable-supported bridges constructed of rope in the tropical regions of Southeast Asia and Africa.<sup>80</sup> Similar structural systems were further developed with the availability of iron and steel, which eventually led to the development of the cable-stayed bridge in the late sixteenth century, and the modern suspension bridge in the early nineteenth century.<sup>81</sup> While cable-supported structures were developed for wider use in the early twentieth centuries, substantial advancements in cable-supported and cable-suspended structural systems occurred in the 1950s.

For millennia, architects have been utilizing cables to support long-span roofs without vertical supports within the interior space. One of the earliest known examples of a cable-supported roof was implemented at the Colosseum at Rome in A.D. 70, where tensioned cables suspended across the oval structure allowed for a column-free interior space that spanned approximately 620 feet by 513 feet.<sup>82</sup>

The use of cable-supported roofs remained uncommon throughout the subsequent centuries and began to reemerge in the 1890s. Perhaps the first cable-supported roof in the modern era was the Shukhov Rotunda, a building designed with a cable-supported hyperboloid roof system and constructed in 1896 for the All-Russia Exhibition in Nizhny Novgorod. With the Shukhov Rotunda, a diagrid lattice of steel strips was used as the underlying structure of a roof that spanned 200 feet.<sup>83</sup>

During World War I, French engineers used the cable-suspended roof system to construct aircraft hangars and other buildings with large roof spans that required uninterrupted interior spaces.<sup>84</sup> In 1921 an article in *Engineering News* titled "Large Roofs Suspended by Cables To Avoid Columns" discussed this development in France, and explained the cable-suspended roof system's potential use for other buildings with such requirements.<sup>85</sup>

Rapid improvements to the cable-supported roof began in the 1950s, when structural engineers explored its use for large-scale warehouses and arenas. These efforts spurred more widescale use and implementation across various building shapes and sizes. The first cable-supported roof of this period was the North Carolina State Fair Livestock Judging Pavilion (now the J.S. Dorton Arena) in Raleigh, North Carolina, designed by Matthew Nowicki and completed in 1953. This arena sported a distinctive system of two parabolic concrete arches that support a spanned roof of cables in a saddle shape. The Dorton Arena influenced a similar structural system designed for the Memorial Swimming Pool in North York Township, Ontario, designed by Venchiarutti and Venchiarutti and completed in 1956.<sup>86</sup>

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<sup>80</sup> Krishna, Prem, *Cable-Suspended Roofs* (New York: McGraw-Hill, 1978), 1.

<sup>81</sup> Krishna, Prem, *Cable-Suspended Roofs*, 1.

<sup>82</sup> Krishna, Prem, *Cable-Suspended Roofs*, 2.

<sup>83</sup> Krishna, Prem, *Cable-Suspended Roofs*, 2.

<sup>84</sup> "Large Roofs Suspended by Cables to Avoid Columns," *Engineering News-Record* 87, no. 17 (December 1, 1921): 688.

<sup>85</sup> "Large Roofs Suspended by Cables to Avoid Columns," 688.

<sup>86</sup> Smith, John Caulfield, "The Record Reports: News from Canada," *Architectural Record* 120, no. 1 (July 1956): 36.



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Architect Eero Saarinen made prominent achievements in the use of cable-supported roofs, which famously took form in the David S. Ingalls Hockey Rink (1958) at Yale University in New Haven, Connecticut (see Figure 44) and the terminal at Washington Dulles International Airport (1963) in Loudoun County, Virginia. With the Ingalls Hockey Rink, Saarinen suspended cables from a central double-curve concrete rib to perimeter concrete walls, allowing for a distinctive, double-arch roof shape. At Washington Dulles International Airport, the main terminal building utilized a cable-suspended catenary curve concrete roof system to create a large, column-free, interior space at the airport's original ticketing area (see Figure 45).



Figure 44. 1960s photograph of the David S. Ingalls Hockey Rink at Yale University in New Haven, Connecticut, designed by Eero Saarinen.<sup>87</sup>

<sup>87</sup> Korab, Balthazar, *Yale University, David S. Ingalls Hockey Rink, New Haven, Connecticut, 1956-59. Exterior, Photograph*, Library of Congress, Prints & Photographs Division, Balthazar Korab Archive at the Library of Congress, <https://www.loc.gov/pictures/item/2018673364/>.

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Figure 45. ca. 2000 photograph of Dulles International Airport main terminal building, Chantilly, Virginia, designed by Eero Saarinen.<sup>88</sup>

#### (a) **Radial cable-supported roofs**

There are various systems of cable-supported roofs that span differing lengths and across varying building plan shapes. A radial cable-supported roof system allows for a long roof span for a circular building that is uninterrupted by vertical columns, making it an ideal roof structure for entertainment venues including sports arenas. This type of roof system relies on both the principles of tension and compression and has been implemented with minor variations to meet specific project goals or limitations. This roof structure not only provides a column-free interior space but is able to be designed and constructed for economy, given the use of widely available high-tensile steel cable and easy-to-manufacture precast concrete. On a circular building, a radial cable-supported roof system could be designed using different approaches. Some examples include the inverted dome system that utilizes a single plane of cable supports, and a double-bicycle wheel system that incorporated two planes of cable supports secured together by vertical tension cables, creating a disc where both sides are convex.

The roof of the Rotunda is an example of a prestressed inverted dome roof, which is constructed with concrete panels that are supported by cables arranged in a radial fashion. This is accomplished by anchoring flexible cables to an outer compression ring—often of concrete—that is constructed atop the perimeter walls of the circular building. The cables are then anchored to an inner tension ring—often of steel—that is suspended above the radial center of the building. The space between each cable is infilled with trapezoidal-shaped, precast concrete panels, which are then “loaded” in-place with temporary weights to create a bending “moment.” In this weighted state, the cables experience tension and slightly elongate, bending the roof into an inverted dome shape, and creating gaps between the concrete panels. These gaps are grouted in this loaded state before the weights are removed from the roof. At this point, the cables would naturally tend to spring back to their prior, unweighted state, but are hindered by the

<sup>88</sup> Balthazar Korab, *Dulles International Airport, Chantilly, Virginia, 1958-63 (Expanded by Skidmore, Owings & Merrill, 1998-2000)*. *Expanded Exterior*, c 2000, Balthazar Korab Collection, Library of Congress Prints & Photographs Division, <https://www.loc.gov/pictures/item/2018673590/>.

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now-grouted concrete panels. This effect adds compression, and the roof system becomes a permanent inverted dome roof spanning the circular building.

The Cilindro Municipal in Montevideo, Uruguay, is considered to be the earliest cable-supported roof on a circular building, utilizing the prestressed inverted dome roof system present on the Rotunda at O'Hare.<sup>89</sup> Designed by structural engineers Leonel Viera and Luis A. Mondino and completed in January 1956, this sports arena exhibited a column-free 310-foot radius, with a central ocular skylight.<sup>90</sup> Later that year, students at Columbia University devised and constructed a prestressed inverted dome roof for a shelter structure at Camp Columbia in Litchfield, Connecticut, based on Viera and Mondino's design (see Figure 46).<sup>91</sup> This effort was documented in the September 1956 issue of *Architectural Record*.<sup>92</sup>



Figure 46. Radial cable-suspended roof under construction at Camp Columbia in 1956.<sup>93</sup>

One of the first enclosed buildings in the United States that utilized the inverted dome roof system was the La Villita Assembly Building in San Antonio, Texas, which was designed by O'Neill Ford & Associates

<sup>89</sup> The Cilindro Municipal was demolished in 2010 after a destructive fire.

<sup>90</sup> "Prestressed Cabled Roof Hangs from Thin Concrete Stadium Wall," *Architectural Record* 120, no. 1 (July 1956): 219.

<sup>91</sup> "New Approach to Roofs in Tension," *Architectural Record* 156 (September 1956): 211.

<sup>92</sup> "New Approach to Roofs in Tension," 211–16.

<sup>93</sup> "New Approach to Roofs in Tension," 214.

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and constructed by G.W. Mitchell Contractors. Completed in 1959, this two-story circular building has a 132-foot-diameter, cable-suspended roof. The Rotunda at O'Hare was designed with a 190-foot diameter, utilizing the same structural system and construction process as both predecessors in Montevideo and San Antonio and completed four years after the La Villita Assembly Building.

Other circular buildings designed with the cable-supported inverted dome roof system and constructed in the 1960s include the following examples:

- Tent of Tomorrow at the New York State Pavilion (1964) designed by Philip Johnson for the 1964 New York World's Fair in Queens.
- Oakland-Alameda County Coliseum Arena (1966) in Oakland, California, (now, the Oracle Arena) designed by Skidmore, Owings and Merrill.
- The Forum (1967) in Inglewood, California, designed by architecture firm Charles Luckman Associates and structural engineer Johnson & Nielsen Associates.
- Madison Square Garden (1968) in New York designed by Charles Luckman Associates and structural engineer Severud Associates.<sup>94</sup>
- Salt Palace (1969) in Salt Lake City, Utah, (demolished in 1994) designed by Bonneville Architects.

#### D. Naess & Murphy/C.F. Murphy Associates

The architectural firm of Naess & Murphy, later known as C.F. Murphy Associates, Murphy/Jahn, and JAHN, represents one of the largest and most prolific architectural firms in postwar Chicago. The firm represents a "lineage" of Chicago architects, beginning with Daniel Burnham in the nineteenth century, and emerged during a pivotal time in the history of Chicago and its urban development. The works of Naess & Murphy/C.F. Murphy marked a transition in the city from 1930s modern architecture to the International Style of the Second Chicago School of Architecture, which was heavily influenced by the work of Ludwig Mies van der Rohe (commonly referred to as Mies). Co-founder Charles F. Murphy, Sr. managed the firm and hired multiple architect and designers for various commissions. In the 1950s, the firm developed a relationship with Mayor Richard Daley early in his mayoral career and worked on highly visible projects at O'Hare and the downtown Chicago Loop, intended by Daley to promote Chicago as a modern city. This context addresses the background of Charles F. Murphy, his professional relationship with Mayor Daley, and the firm's shift towards the Second Chicago School. A brief summary of the firm following its acquisition by Helmut Jahn in the 1980s is also provided for context of the firm's work at O'Hare.

Charles F. Murphy, Sr. was born in New Jersey in 1890 and moved to Chicago during his childhood. He graduated from the De La Salle Institute, a Catholic technical high school in Chicago, where he was

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<sup>94</sup> "A Suspended Roof to Be First Here," *New York Times*, May 8, 1966.



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trained as a stenographer. Murphy entered the architectural field in 1911 as secretary for the firm of Daniel Burnham, one of Chicago's leading architects. While working at D.H. Burnham and Company, Murphy became the personal assistant to Ernest Graham, an architect working at the firm. The two maintained a very close working relationship for the next 25 years, with Murphy following Graham to the firm of Graham, Anderson, Probst, and White in 1917.<sup>95</sup> Graham's new firm was one of the most prolific in Chicago, with significant works including the Pittsfield Building (1927), the Straus Building (1923-1924), the Foreman State Bank (1928-1930), and the Field Building (1934). Murphy became a licensed architect while working with Graham, but mostly managed the inner workings of the firm and developed the managerial and administrative skills that he would employ for the remainder of his career.<sup>96</sup>

Ernest Graham passed away in 1936. The day after Graham's death, Murphy was fired from the firm along with two other architects: Sigurd Naess and Alfred Shaw. These three architects soon opened their own firm, Shaw, Naess, and Murphy. Continuing his role as an administrator, Murphy developed the strong corporate organization that would come to define the firm. Sigurd Naess had emigrated to the United States from Norway as a young man in 1902. He became known as a planning expert, and led much of the production work at Shaw, Naess, and Murphy. Alfred Shaw was a designer and painter from Boston who studied at MIT before working in Chicago. Shaw was the first of many designers that Murphy relied on over the years to build the firm's reputation. With the Great Depression followed by World War II, the 1930s and 1940s proved to be a difficult time for most architectural firms, especially one starting out. During this time, Shaw, Naess, and Murphy found work on smaller projects including a remodel of the Museum of Science and Industry in Chicago, designing and installing elevators and escalators in the Marshall Field store, and designing a munitions plant in New Jersey. The firm also gained experience in the aviation field during the war, completing work at Bunker Hill Field (currently Grissom Air Reserve Base) in Indiana and Kindley Air Force Base in Bermuda (now Bermuda International Airport). Due to personal conflicts, among other factors, Alfred Shaw left the firm in 1946 and the firm's name was changed to Naess & Murphy.<sup>97</sup>

The first major project for Naess & Murphy was the Prudential Insurance Building (1952-1955), the first skyscraper built in Chicago since the Field Building in 1934. The 44-story concrete and glass building not only signaled the return of skyscraper construction to Chicago, but also signified the arrival of postwar modernism to the urban landscape. Kenan Heise, writing for the *Chicago Tribune* in 1985, argued that the Prudential Building "hinged two eras of Chicago architecture," and that it "opened the modern, explosive era of Chicago commercial architecture."<sup>98</sup> Naess & Murphy continued to work on other commercial

<sup>95</sup> Kenan Heise, "Charles F. Murphy, Chicago Architect," *Chicagotribune.Com*, accessed July 22, 2019, <https://www.chicagotribune.com/news/ct-xpm-1985-05-24-8502020167-story.html>; Franz Schulze, *Oral History of Carty Manny* (Chicago, Ill.: Art Institute of Chicago, 1995), 108; Mark J. Bouman and John Zukowsky, Ed., *Chicago Architecture and Design, 1923-1993: Reconfiguration of an American Metropolis* (Chicago and Munich: Prestel and The Art Institute of Chicago, 1993), 468.

<sup>96</sup> Ross Miller, "Helmut Jahn and the Line of Succession," in *Chicago Architecture and Design 1923-1993: Reconfiguration of an American Metropolis* (Chicago and Munich: The Art Institute of Chicago and Perstel-Verlog, 1993), 305; Schulze, *Oral History of Carty Manny*, 108; Carol Willis, "Light, Height, and Site: The Skyscraper in Chicago," in *Chicago Architecture and Design, 1923-1993: Reconfiguration of an American Metropolis*, 1993, 131.

<sup>97</sup> Miller, "Helmut Jahn and the Line of Succession," 305; Schulze, *Oral History of Carty Manny*, 110-11, 152.

<sup>98</sup> Heise, "Charles F. Murphy, Chicago Architect."

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projects in the 1950s, including the Chicago Sun-Times Building (1957) and the Federal Reserve Addition (1957), which historian Ross Miller has described as “serviceable modernism.” However, the Prudential Building proved to be the firm’s most significant building of the 1950s, not only for its architectural significance, but also because it was at the dedication in 1954 that Murphy met the soon-to-be-mayor Richard J. Daley. The relationship that developed between Murphy and Daley would establish Naess & Murphy as one of the leading architectural firms in Chicago.<sup>99</sup>

After their first meeting, Mayor Daley and Murphy slowly developed a professional relationship that extended through the 1960s. Daley had a vision to rebuild the downtown Chicago Loop as a modern American city, and Murphy’s firm became an integral partner in bringing that vision to reality. Murphy and Daley shared an Irish-Catholic connection, and they had both attended the De La Salle Institute, although Daley graduated from the school decades after Murphy. According to Miller, Daley was impressed with Murphy because he “did not strike Daley as a fancy-pants architect.”<sup>100</sup> Daley soon turned to Murphy to help him prevent a lawsuit from residents along the South Shore attempting to stop the construction of a new water filtration plant. Naess & Murphy worked to make the plant more attractive by designing a civic park as part of the facility and saved the new mayor from the impending lawsuit. Daley then turned to Naess & Murphy to help him with another difficult situation with the city’s new airport at O’Hare Field.<sup>101</sup>

When Daley took office, funding for O’Hare had been a point of contention between the City and the airlines for nearly a decade. However, the new mayor was committed to building a modern airport for Chicago and he soon began direct negotiations with the airlines to reach a mutual agreement in 1956. With funding secured, he commissioned Naess & Murphy to review the plans drafted by Ralph Burke, and construction began in earnest in 1959. Between 1960 and the mid-1970s, the firm was responsible, along with multiple partner firms, for the design and construction of O’Hare, including Terminals 2 and 3, the Rotunda, the Heating & Refrigeration Plant, the AT&T Central Office, the City Substation, and the O’Hare Hilton Hotel. The firm was also involved in designing the overall layout of the airport, including the runways, roadways, parking structures, and various other utilitarian buildings and systems.<sup>102</sup>

Sigurd Naess retired in 1959 and Murphy subsequently changed the name of the firm to C.F. Murphy Associates (C.F. Murphy) in 1960. Murphy’s son, Charles F. Murphy, Jr., became more involved in the firm. Murphy, Jr. was an admirer of Mies and began hiring designers and architects, many of whom are now associated with the Second Chicago School of Architecture, who had either been trained by Mies or were committed to following his philosophies embodied in the International Style. The first of these new architects was Stanislaw Gladych, previous employed by Skidmore, Owings, and Merrill, who was hired as the firm’s lead designer. Gladych was one of the leading architects at O’Hare along with Carty Manny, Gertrude Kerbis, and John Novack, all of whom were strongly influenced by Mies. Other notable

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<sup>99</sup> Miller, “Helmut Jahn and the Line of Succession,” 303, 305.

<sup>100</sup> Miller, “Helmut Jahn and the Line of Succession,” 303.

<sup>101</sup> Schulze, *Oral History of Carty Manny*, 152.

<sup>102</sup> Carl W. Condit, *Chicago: 1930-70: Building, Planning, and Urban Technology* (Chicago and London: The University of Chicago Press, 1974), 259; Richard P. Doherty, *The Origin and Development of Chicago-O’Hare International Airport (Dissertation)* (Muncie, Ind.: Ball State University, 1970), 166, 193, 196; C.F. Murphy Associates, *C.F. Murphy Associates* (Chicago: C.F. Murphy Associates, 1975).

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architects employed by C.F. Murphy throughout the 1960s included Otto Stark, Jacque Brownson, and James Ferris. C.F. Murphy's turn toward International-style design also fit perfectly into Mayor Daley's vision to modernize Chicago. According to Ross Miller, "The radically modern architecture demonstrated that the mayor of Chicago was not simply defending old arrangements, but was doing nothing less than recasting the aging American downtown."<sup>103</sup> Connecting Chicago to the world with a modern airport facility at O'Hare was an early priority for Daley and his vision to rebuild the city, but it was not the last. In the 1960s, the mayor planned a major redevelopment of the Dearborn Avenue corridor. C.F. Murphy participated in partnerships on three buildings that redefined this corridor of downtown Chicago, including the Richard J. Daley Center (1965), the Chicago Federal Center (1974), and the First National Bank of Chicago (1969). The firm would continue to complete numerous civic commissions for the City of Chicago, employing the Miesian International style to recast the city's image in the postwar era.<sup>104</sup> C.F. Murphy did not complete this task alone, however. Throughout the 1960s and 1970s, the majority of the firm's projects were the products of multiple architects and designers collaborating within the firm, as well as partnerships with other reputable firms such as Skidmore, Owings, and Merrill and Mies's private firm.

In 1967, Mayor Daley commissioned C.F. Murphy to design a new exhibition hall at McCormick Place. To assist with the project, the firm hired Eugene Summers, who brought his assistant Helmut Jahn to the firm as well. As a student of Mies, Summers was devoted to the modernist principles of the Second Chicago School of Architecture. Jahn, on the other hand, gained a reputation for being more flexible in his designs. By 1973, Jahn was promoted to Executive Vice President and Director of Planning and Design within C.F. Murphy and spent the remainder of the decade expanding the firm's stylistic range on multiple projects around the United States, but particularly in Chicago. As Ross Miller argued, "Within the framework of C.F. Murphy's bread-and-butter civic commission of the 1970s, Jahn methodically renewed the firm and established his own reputation."<sup>105</sup> In 1982, Jahn gained a controlling interest in C.F. Murphy and changed the firm's name to Murphy/Jahn, while significantly reducing the size of the firm. Charles Murphy, Sr. passed away in 1985.<sup>106</sup>

Jahn continued C.F. Murphy's work at O'Hare. In the 1980s, Murphy/Jahn led O'Hare Associates, a joint venture of multiple firms, to complete a new Terminal 1, expand Terminals 2 and 3, and build a new international terminal (Terminal 5), among other airport work.<sup>107</sup> In 2012, Jahn renamed the firm to JAHN.<sup>108</sup> The firm continues to work internationally while maintaining its main office in Chicago.

<sup>103</sup> Ross Miller, "City Hall and the Architecture of Power," in *Chicago Architecture and Design, 1923-1993: Reconfiguration of an American Metropolis* (Chicago and Munich: Prestel and The Art Institute of Chicago, 1993), 253.

<sup>104</sup> Miller, "Helmut Jahn and the Line of Succession," 305; Miller, "City Hall and the Architecture of Power," 249–57; C.F. Murphy Associates, *C.F. Murphy Associates*.

<sup>105</sup> Miller, "Helmut Jahn and the Line of Succession," 307.

<sup>106</sup> Heise, "Charles F. Murphy, Chicago Architect."

<sup>107</sup> "Transportation," *JAHN*, accessed August 20, 2019, <https://www.jahn-us.com/transportation>; O'Hare Associates, *Chicago O'Hare International Airport O'Hare Development Program* (Prepared for the City of Chicago, December 1982); Gapp, Paul, "O'Hare at the Turning Point: Is Delta's Sparkle the New Direction?," *Chicago Tribune*, August 19, 1984, sec. 13.

<sup>108</sup> Nory Miller, *Helmut Jahn* (New York: Rizzoli, 1986), 7; "Transportation"; Melissa Harris, "Name Change, New Design Leadership at Murphy/Jahn," *Chicago Tribune*, accessed August 20, 2019,

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#### E. Gertrude Lempp Kerbis

Gertrude Lempp Kerbis was the first woman to own and operate an architectural firm in Chicago and is known for designing several commercial, residential, and institutional buildings throughout her career.<sup>109</sup> Kerbis's obituary regards her as a trailblazer for female architects during an era where the field was dominated by men, and she is considered to have accomplished many firsts for women in the Chicago architecture industry, including the first woman fellow in the Chicago chapter of the American Institute of Architects (AIA).<sup>110</sup> Over her lifetime Kerbis and her designs were honored with several architecture awards, including the Lifetime Achievement Award granted by the Chicago chapter of the AIA in 2008. Kerbis died in 2016, leaving a legacy rooted in her architectural accomplishments and efforts to promote female inclusion in American architecture.

Born in 1926 as Gertrude Lempp, Kerbis was raised on the northwest side of Chicago. After graduating high school in 1944, she briefly attended Wright Junior College in Chicago before transferring to the University of Wisconsin in Madison.<sup>111</sup> During this time Kerbis made a spontaneous trip to Taliesin, Frank Lloyd Wright's residential estate, studio, and school located approximately 30 miles west of Madison, which influenced Kerbis to pursue a career in architecture.<sup>112</sup> As the University of Wisconsin did not offer an architecture program, Kerbis transferred to the University of Illinois to acquire a bachelor of science degree in architectural engineering in 1948.<sup>113</sup>

Disappointed with the traditional Beaux-Arts curriculum, Kerbis solicited her employment with a variety of Modern architects after graduating, including Frank Lloyd Wright, Mies, Walter Gropius, and Carl Koch. She accepted a position with Koch, who was teaching at MIT, and moved to Belmont, Massachusetts, to work in his studio on a furniture project commissioned by the Museum of Modern Art.<sup>114</sup> After one year Kerbis returned to Chicago in 1949 and worked for Bertrand Goldberg followed by Loebli, Schlossman and Bennett, where she was the only female architect.<sup>115</sup>

In the fall of 1949 Kerbis began pursuing her master's degree at Harvard Graduate School of Design, where classes were taught by Modernist architect Walter Gropius. However, when she realized she would need to get another bachelor's degree—this time in engineering—before pursuing her master's degree, she decided to transfer schools. After two years at Harvard, Kerbis returned to Illinois in 1951 to finish her graduate degree at the architecture program at Illinois Institute of Technology (IIT), which was headed by the modernist architect Mies.

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<https://www.chicagotribune.com/business/ct-xpm-2012-10-26-chi-name-change-new-design-leadership-at-murphyjahn-20121026-story.html>.

<sup>109</sup> Blum, *Oral History of Gertrude Kerbis*, 122.

<sup>110</sup> Blair Kamin, "Gertrude Kerbis, 1926-2016: Innovative Architect Designed Her Own Path," *Chicago Tribune*, June 17, 2016.

<sup>111</sup> Blum, *Oral History of Gertrude Kerbis*, 4.

<sup>112</sup> Blum, *Oral History of Gertrude Kerbis*, 9.

<sup>113</sup> King, *Interview with Gertrude Kerbis*, 1.

<sup>114</sup> King, *Interview with Gertrude Kerbis*, 4–5.

<sup>115</sup> Blum, *Oral History of Gertrude Kerbis*, 41.



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At IIT, Mies selected Kerbis and three other students to work with him on the design for the Convention Hall project, which was a concept that was not designed for any particular location.<sup>116</sup> The structural system of the Convention Hall was a two-way grid of steel trusses that spanned a large interior space without interior columns. According to Kerbis, she eventually resigned from the team out of frustration about working on someone else's design, and as a result was denied assistance from Mies on her master's thesis.<sup>117</sup>

After graduating from IIT in 1954, Kerbis accepted a job at Skidmore, Owings & Merrill (SOM), the largest architecture firm in Chicago. At SOM she was selected as a member of the design team for the new United States Airforce Academy in Colorado Springs, Colorado, which was led by Walter Netsch and Gordon Bunshaft. Bunshaft selected Kerbis to manage the food and service segment of the campus, which culminated in the design for the dining hall that would become the award-winning Mitchell Hall.<sup>118</sup>

Mitchell Hall was a large hall with glass walls designed to accommodate approximately 300 people seated at once. Kerbis had utilized a two-way truss system to span the building's 300-foot by 300-foot area without the use of interior columns, which was heavily influenced by the structural system applied to Mies's Convention Hall project.<sup>119</sup> According to Kerbis, this type of long-span, two-way truss system was the first of its kind to be constructed, and had later influenced her vision for the design of the Rotunda.<sup>120</sup> The roof system was highlighted in the 1961 book *Turning Point of Building: Structure and Design* by Konrad Wachsmann as a technological innovation.

One of Kerbis's final projects at SOM was the Skokie Public Library, completed in 1959, which she designed on a team with James Hammond and Walter Netsch. As an example of Modern architecture of the mid-century period, the library building won an AIA Honor Award in 1962 with critics claiming that it had established a new standard for libraries.

Stanislaw Gladych worked with Kerbis on the Air Force Academy project and left SOM shortly afterward to join Naess & Murphy in the design of the new O'Hare terminals.<sup>121</sup> Gladych encouraged several other employees from SOM to join him at Naess & Murphy, and Kerbis was one of several colleagues to make the transition to Naess & Murphy. At the time of her hiring in 1959, Kerbis was the only female designer on staff, just as she had been when joining SOM. Shortly after her arrival at Naess & Murphy, the company changed its name to C.F. Murphy.

By the time Kerbis had joined the Naess & Murphy team, the terminal plan had already been conceptualized, sketched, and presented to the City Commissioner of Public Works for cost estimations, with the Rotunda building serving as a centralized circular restaurant building that was to connect the two

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<sup>116</sup> Blum, *Oral History of Gertrude Kerbis*, 47.

<sup>117</sup> Blum, *Oral History of Gertrude Kerbis*, 48.

<sup>118</sup> Blum, *Oral History of Gertrude Kerbis*, 68.

<sup>119</sup> Branigan, *A History of Chicago's O'Hare Airport*, 89.

<sup>120</sup> Branigan, *A History of Chicago's O'Hare Airport*, 89.

<sup>121</sup> Blum, *Oral History of Gertrude Kerbis*, 94.

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new terminals.<sup>122</sup> Kerbis worked with Gladych and Carter Manny, Jr. in the overall design of the terminal plan, and while she had minor input on detailed design aspects of the terminal buildings and concourses, she was selected to lead the design for the Rotunda given her previous experience with Mitchell Hall.

The late 1950s and early 1960s were the beginning of the jet age, and there was an excitement about the new aircraft. Kerbis took this enthusiasm into account and designed the Rotunda to have a column-free interior space with large windows to facilitate uninterrupted views of the new jet-engine-powered aircraft moving around the airfield. The Rotunda was completed in 1963 and became a centerpiece for O'Hare's new terminal project. Given the press coverage and amount of commemoration by architectural publications for its design, the Rotunda appears to be the most publicized high-profile work of Kerbis's career.

Kerbis left C.F. Murphy in 1962, before the completion of the Rotunda, to spend time raising her family with her new husband Donald Kerbis, and to start her own firm. Donald was a professional tennis player, and during the years after Kerbis's departure from C.F. Murphy the couple teamed to design an indoor tennis facility in Highland Park, a city north of Chicago. The Kerbis Tennis Club, as it was called, utilized hyperbolic paraboloid concrete panels to make a column-free interior space within the facility. Around 1965 Kerbis returned to C.F. Murphy for two years but left after she felt she had been bypassed on major projects, which she claims in an oral interview was a result of sexism within the company.<sup>123</sup>

Following her departure from C.F. Murphy, Kerbis opened her own architectural firm in Chicago in 1967, and in 1969 she began teaching part-time at the design studio at the University of Illinois. She then joined as a faculty member within the architecture department at a community college near Chicago called Harper College. At one point, she taught a graduate studio at Washington University in St. Louis.

In 1970 Kerbis was elected as fellow of the AIA, the tenth such woman to receive this accolade in the country.<sup>124</sup> In 1973 she founded Chicago Women in Architecture, a group to assist women with aspects of working in the male-dominated architecture field.<sup>125</sup> The group became a formal organization and accepted grants to put on architectural exhibitions as a way of expressing the ideas of the group's forums.

During the 1960s and 1970s Kerbis mainly designed for urban renewal projects. She developed concepts about modern urban living in dense areas, which culminated into one of her most well-known Chicago designs: the Greenhouse Condominiums. In designing the 11-unit residential building, Kerbis isolated the traffic from the units, and introduced a greenhouse between the living room spaces and the outdoors (see Figure 47).<sup>126</sup> While the greenhouse was panned by Paul Gapp, the architecture critic at the *Chicago Tribune*, the project was honored by the AIA Chicago chapter with a Distinguished Building Award in

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<sup>122</sup> Naess & Murphy, Landrum & Brown, and O'Donnell, *Chicago O'Hare International Airport Engineering Report: First Stage Development Program*, 9.

<sup>123</sup> Blum, *Oral History of Gertrude Kerbis*, 122.

<sup>124</sup> Blum, *Oral History of Gertrude Kerbis*, 1.

<sup>125</sup> Blum, *Oral History of Gertrude Kerbis*, 125.

<sup>126</sup> King, *Interview with Gertrude Kerbis*, 24; Gertrude Kerbis, "'Greenhouse' Rebuttal," *Chicago Tribune*, October 6, 1976.

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1976.<sup>127</sup> Gapp made the claim that Kerbis had won the award “in part because she is a woman in a self-consciously male-dominated profession.”<sup>128</sup> Defending her project, Kerbis responded to Gapp in an op-ed “rebuttal” piece published in the *Chicago Tribune*, where she reiterated the innovative accomplishments of the project in providing a light-filled “capsulated living environment” that provides interior views in an area of Chicago that is otherwise dominated by “urban pollution.”<sup>129</sup>

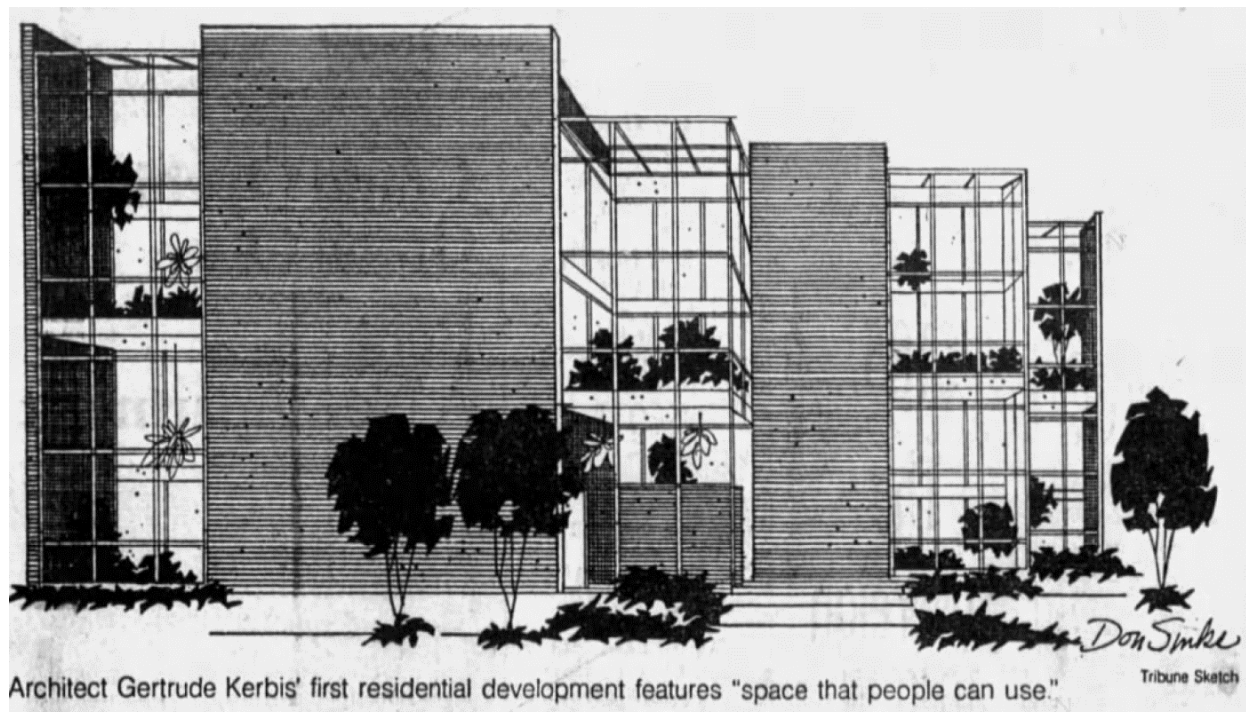


Figure 47. Sketch of the Greenhouse Condominiums from a 1975 Chicago Tribune article.<sup>130</sup>

In 1976 the *Chicago Tribune* named Kerbis one of “Chicago’s most powerful women,” and in 1980 Kerbis was elected as the first female president of the AIA Chicago chapter.<sup>131</sup> In this latter part of her career, Kerbis continued to promote female participation and inclusion in the field of architecture, and into other traditionally male-dominated industries. In 1983 Kerbis gave a testimony before the State of Illinois and the Gannon Proctor Commission to argue for the inclusion of women in the definition of minorities.<sup>132</sup> Kerbis became one of the first female members of the Cliff Dwellers, a private civic arts organization, then was elected as the first female president of the club in 1988.<sup>133</sup>

A list of awards for Kerbis and her designs is provided below:

<sup>127</sup> Blum, *Oral History of Gertrude Kerbis*, 155.

<sup>128</sup> Gapp, Paul, “1976 AIA Winners: They Seem Strangely Familiar,” *Chicago Tribune*, September 18, 1976, sec. 2.

<sup>129</sup> Kerbis, “‘Greenhouse’ Rebuttal.”

<sup>130</sup> “Developer Is ‘Down’ On High-Rises,” *Chicago Tribune*, October 5, 1975, sec. 12.

<sup>131</sup> Knoblauch, Mary, “Women Who Rule the Financial Whirl,” *Chicago Tribune*, January 13, 1976, sec. 3.

<sup>132</sup> Blum, *Oral History of Gertrude Kerbis*, 127.

<sup>133</sup> Blum, *Oral History of Gertrude Kerbis*, 174.

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- Meadows Club at Lake Meadows in Chicago, Illinois (1959)
  - AIA Chicago Chapter Citation of Merit, 1960<sup>134</sup>
- Skokie Public Library in Skokie Illinois (1959)
  - AIA Chicago Chapter Honor Award, 1962
  - American Library Association National Building Award, 1962
  - Chicago Fine Arts Council Outstanding Building Award, 1963<sup>135</sup>
- Rotunda (Seven Continents Building) at O'Hare (1963)
  - AIA Chicago Chapter Honor Award, 1965<sup>136</sup>
- Greenhouse Condominiums in Chicago, Illinois (1976)
  - AIA Chicago Chapter Distinguished Building Award, 1976<sup>137</sup>

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<sup>134</sup> Blum, *Oral History of Gertrude Kerbis*, 180.

<sup>135</sup> Blum, *Oral History of Gertrude Kerbis*, 83.

<sup>136</sup> Blum, *Oral History of Gertrude Kerbis*, 180.

<sup>137</sup> Blum, *Oral History of Gertrude Kerbis*, 155.



## Section 3

### Recommendation

### 3. Recommendation

#### A. Significance

The Rotunda was evaluated for National Register of Historic Places (National Register) eligibility under *Criteria A, B, C, and D*. Evaluation under each of the National Register Criteria and discussion of period and level of significance and historic integrity is provided below.

##### (1) Criterion A

Under *Criterion A*, "Properties can be eligible for the National Register if they are associated with events that have made a significant contribution to the broad patterns of our history."

The Rotunda was completed in 1963 during a period of major growth at O'Hare airport. At this time, Terminals 2 and 3, the Rotunda, and support facilities were constructed based on O'Hare's 1958 master plan to address airport expansion, satisfy passenger demand and changes within the aviation industry, and provide new facilities and services for passengers and airport staff. The introduction of jet-engine-powered aircraft to commercial air travel in the late 1950s precipitated substantial changes to airport design and operations, pressuring City officials to expand the O'Hare airport to serve this increase in air travel and secure Chicago's standing as connecting hub for air transportation. As one of the major components of this construction program, the Rotunda exemplifies the 1961-63 expansion of O'Hare to serve an important transportation need. Specifically, the Rotunda provided new dining opportunities to the expanding number of passengers and served as a connection point between the two terminals. Following its early 1960s expansion, O'Hare quickly ranked as one of the busiest airports in the nation and is representative of jet age transportation in the United States.<sup>138</sup> As such, the Rotunda possesses National Register significance under *Criterion A: Transportation*.

The Rotunda was also evaluated under *Criterion A: Entertainment/Recreation* for the role it played in accommodating social activities of dining and viewing of flights. Since the early twentieth century, grandstands, observation decks, restaurants, and other areas promoting views toward aircraft movements on the airfield and in the air had been incorporated into airports. Entertainment of this sort became a commercial opportunity for airports, and implementing viewing areas served to welcome both passengers and non-travelers alike. Technological advancements in air travel led to the emergence of the jet age, and a renewed interest in the spectacle of airplane watching. As airports around the world began modernizing to accommodate larger jet-engine-powered aircraft, terminals continued to incorporate viewing areas in much the same way as had been implemented in prior decades.

The Rotunda is an entire building dedicated to the social activities of dining and spectating for travelers and non-travelers visiting O'Hare. However, the Rotunda does not embody any new trends that differ from those airfield-viewing areas of airports designed in the first half of the twentieth century. At the time of the Rotunda's completion in 1963, the incorporation of spectator entertainment into airports was not a new concept, and the combination of a restaurant dining experience with views toward the airfield had

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<sup>138</sup> "Chicago O'Hare International Airport, Crossroads of the World," *Chicago Tribune*, April 7, 1963, sec. 7A: Your Chicago Today.

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been successfully executed several times over since the 1920s. As such, the Rotunda is not directly associated with emergence of spectating at airports as a social event, nor does it represent one of the first or otherwise influential combinations of hospitality and entertainment implemented in airports.

Therefore, the Rotunda does not possess National Register significance under *Criterion A*:

*Entertainment/Recreation*.

#### (2) *Criterion B*

Under *Criterion B*, "Properties may be eligible for the National Register if they are associated with the lives of persons significant in our past."

The Rotunda is not associated with any persons of historical significance outside of its architects, engineers, and designers, which are addressed under *Criterion C*. As such, it is recommended not eligible for listing in the National Register under *Criterion B*.

#### (3) *Criterion C*

Under *Criterion C*, "Properties may be eligible for the National Register if they embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction."

The Rotunda embodies significant characteristics of an airport building of the jet age, representing this distinctive property type. The jet age had an influential impact on airport terminal design, as airports evolved to accommodate both a dramatic increase in air traffic following World War II and the larger jet-engine-powered passenger aircraft of the late 1950s. The introduction of jet aircraft prompted City officials to design new terminals for existing airports or redesign existing terminals to accommodate the larger size of the new aircraft. This pattern of development spread across many major metropolitan regions of the country, influencing airport design changes at airports such as Idlewild Airport (now JFK) in New York and Lambert Field in St. Louis. The development of O'Hare according to the 1958 master plan by Naess & Murphy was a direct response to these influences.

Designs for new airport terminals not only accommodated larger aircraft and an increase in passenger traffic, but also reflected public enthusiasm for the new aircraft and a renewed spectator interest in viewing flight. In the jet age, as in prior eras, airport designs continued to incorporate viewing spaces in the form of observation decks, interior viewing platforms, and restaurants with sweeping views of the airfield. However, the noise and vibrations from jet-engine-powered aircraft influenced these viewing spaces to be enclosed, while retaining sweeping views of the airfield. The Rotunda embodies these aspects of the jet age through various elements of its design, including its large, thick windows designed to provide diners at the building's multiple restaurants with uninterrupted views of the ramp and runway beyond, while dampening the noise and vibrations of the jet engine aircraft. Views toward the airfield are also enhanced by the lack of interior columns, which was enabled by the use of a radial cable-suspended roof. While airfield-oriented restaurants had been designed for several decades prior to the 1960s, the Rotunda possesses National Register significance under *Criterion C: Architecture* at the national level as a significant example of the influence of jet age architecture on airport design.

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The Rotunda utilizes a radial cable-suspended roof to create a column-free interior space. This roof system was first developed in the early 1950s, with the first example being the Cilindro Municipal (1956) in Montevideo, Uruguay, designed by structural engineers Leonel Viera and Luis A. Mondino. First replicated in the United States at Camp Columbia in Litchfield, Connecticut, near the end of 1956 and later at the La Villita Assembly Building in San Antonio, Texas, in 1959, the radial cable-suspended roof was already in use by the time the Rotunda was completed in 1963. While the Rotunda was likely the earliest and only example of this roof form in Chicago and the state of Illinois, other larger, more significant examples of this roof system were implemented shortly after its completion: the Oakland-Alameda County Coliseum Arena (1966) (now Oracle Arena) in Oakland, California; the Forum (1967) in Inglewood near Los Angeles; and, Madison Square Garden (1968) in New York, among other examples, constructed during the 1960s. Research did not reveal that architect Gertrude Lempp Kerbis nor structural engineer Sherwin Asrow developed this roof form, nor does evidence suggest that the Rotunda's design influenced later examples of the radial cable-suspended roof, including the aforementioned examples. Therefore, the Rotunda's roof does not reflect a significant or distinctive architectural characteristic of the building to warrant eligibility under *Criterion C: Engineering*.

The Rotunda was also evaluated under *Criterion C* for its potential significance as the work of a master architect. Kerbis is widely considered to be a significant figure for her contributions to the field of architecture in Chicago and Illinois with regard to female engagement and advancement in the typically male-dominated field. Often referenced as a "trailblazer," Kerbis was recognized as the first woman to be selected for major architectural projects in Chicago and was the first woman to own and operate her own architectural firm in the city. Kerbis was honored with an American Institute of Architects Chicago Chapter Lifetime Achievement Award, and many of her projects gained awards and both positive and negative attention from critics throughout her career. Kerbis organized the Chicago Women in Architecture group to promote female inclusion in architecture and to inspire creativity through internal exhibitions and discussions regarding appropriate actions among women architects who believed they were not selected as lead designers due to the sole fact that they were women.<sup>139</sup> Joined by other significant female architects such as Carol Ross Barney and Natalie de Blois, Kerbis developed this organization to help foster female architects in advancing in the field of architecture.

Kerbis was a Chicago-based architect who made significant contributions to the field of architecture in Chicago and the state of Illinois, and towards advancing women in this profession. As such, Kerbis can be recognized for "greatness in the field" of architecture.<sup>140</sup> The Rotunda is the building most associated with her productive career. As such, it possesses National Register significance under *Criterion C: Architecture* at the local level for association with master architect Gertrude Lempp Kerbis.

#### (4) *Criterion D*

Under *Criterion D*, "Properties may be eligible for the National Register if they have yielded, or may be likely to yield, information important in prehistory or history."

<sup>139</sup> King, *Interview with Gertrude Kerbis*, 34.

<sup>140</sup> National Park Service, *How to Apply the National Register Criteria for Evaluation* (Washington, D.C.: Department of the Interior, 1997), 20.

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The design, construction, and alterations of the Rotunda have been well documented, and it is unlikely that the building has potential to yield important information that is not otherwise accessible. As such, the Rotunda is recommended not eligible for listing in the National Register under *Criterion D*.

#### (5) Period of significance

The period of significance was determined to coincide with the dates of construction of the Rotunda as part of the 1958 O'Hare master plan: 1961-63.

#### (6) Level of significance

The Rotunda was determined to be significant for its association with jet age transportation under *Criterion A: Transportation* as a significant example of the influence of jet age architecture on airport design of the late 1950s and 1960s, at the national level under *Criterion C: Architecture*, and as a representative work associated with the influential career of master architect Gertrude Lempp Kerbis at the local level under *Criterion C: Architecture*.

### B. Integrity

To be eligible for inclusion in the National Register, a property must exhibit sufficient historic integrity to convey its significance, in addition to being associated with one or more of the National Register Criteria listed above. The Rotunda was evaluated based on the seven aspects of integrity below: location, design, setting, materials, workmanship, feeling, and association. The evaluation of integrity for the Rotunda according to each aspect is detailed below and assessed to its period of significance of 1961-63.

- **Location** – The Rotunda remains in its original location and therefore retains integrity of location.
- **Design** – The Rotunda has experienced several alterations to its interior and exterior, including changes to design in the atrium as well as changes to spatial arrangement of original dining areas at the concourse level. The Seven Continents Restaurant within the Rotunda closed in 1994, which resulted in spatial arrangement changes and the removal of the dining function from the mezzanine level. Despite these changes, the Rotunda retains the critical design elements that convey its association with jet age transportation, including its circular form, double-height interior atrium space, cable-suspended roof system resulting in column-less interior space, and south-facing windows that provide views toward the airfield. As such, the Rotunda retains sufficient integrity of design to convey significance under both *Criterion A: Transportation* and *Criterion C: Architecture*.
- **Setting** – The setting of the Rotunda was diminished by the 1995 construction of the FAA office building and associated FAA Main Control Tower adjacent to the building's north elevation. As such, the Rotunda's ability to stand as a prominent circular building within the Terminal Core has been compromised, as its visibility from landside has been almost entirely obscured by the FAA office building, outward views toward the north have been eliminated, and airfield views are limited by the enlargement of Concourse G. Therefore, the Rotunda has diminished integrity of setting.



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- Materials** – The Rotunda has experienced several material changes, including the removal and enclosing of windows along its north elevation, replacement of other windows with similar glazing with slight tint variation, and changes to interior finishes including cladding of the original interior wood wall ribbing with metal ribbing and changes in the mezzanine level balcony and terrazzo flooring at the center of the atrium due to removal of an escalator. Nevertheless, it retains sufficient materials from its original design, including the cable-suspended concrete roof, concrete ceiling visible throughout the interior, high-aggregate reinforced-concrete columns along the building's perimeter walls, most of its terrazzo flooring, and terrazzo interior columns.<sup>141</sup> Despite some changes in materials, the Rotunda retains sufficient integrity from its date of construction to convey its association with jet age architecture under both *Criterion A: Transportation* and *Criterion C: Architecture*.
- Workmanship** – The Rotunda has experienced interior and exterior alterations that have weakened integrity of workmanship, including the removal or replacement of windows and changes to interior wall cladding. However, the most critical elements that convey workmanship with respect to the overall form and design of the building remain intact, namely the cable-suspended roof system, which was a distinctive and unusual roof form that required relatively nontraditional construction techniques. Therefore, the Rotunda retains integrity of workmanship to convey significance under both *Criterion A: Transportation* and *Criterion C: Architecture*.
- Feeling** – The Rotunda retains its continued use as a concession-focused building and retention of the main interior atrium and windows continue to provide the critical spectator vantagepoints south toward the airfield. The building also retains spatial arrangement of its most critical public spaces, including the atrium and separation of concourse and mezzanine levels, as well as the column-less interior. Therefore, the Rotunda retains integrity of feeling to convey significance under both *Criterion A: Transportation* and *Criterion C: Architecture*.
- Association** – Due to the retention of the general form, dimensions, overall materials, and focus on dining with a view that convey the Rotunda's association with jet age transportation, the Rotunda retains its association to convey significance under both *Criterion A: Transportation* and *Criterion C: Architecture*.

### C. Eligibility

The Rotunda exemplifies the 1961-63 expansion of O'Hare to serve an important transportation need and displays significance under *Criterion A: Transportation*. It also possesses significance under *Criterion C: Architecture* as a significant expression of jet age architecture as it relates to airport design and as a representative work of influential master architect Gertrude Lempp Kerbis. The Rotunda retains historic integrity in six of seven aspects, with its setting compromised by adjacent construction after its period of significance (1961-63). As a result, the Rotunda is recommended eligible for listing in the National Register.

<sup>141</sup> Most of the wood ribbing are currently superficially covered by metal ribbing for protection.

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